Climate Change Mitigation Survey of Queensland Local Councils: Final Report

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Executive Summary

This report benchmarks the current status of strategies and methodologies employed by Local Government in Queensland to achieve a reduction in the carbon intensity of their operations in response to climate change and legislative action by the Australian Government. A survey of Queensland Councils reveals there is much to be done across the State in assessing local Council greenhouse gas emissions and in implementing cost effective emissions reduction actions. Our analysis indicates that if Councils are to engage with the issues of climate change, emissions reduction and carbon offsetting, the benefits of energy efficiency and cost savings will be key drivers for action.

The purpose of this report is to assess the level of carbon management by Queensland Councils and their readiness to address carbon price impacts on Council operations. The report outlines carbon mitigation, reporting, and offsetting actions by a range of Queensland Councils, and identifies the support required to address carbon liability.

1. A climate change survey formed the basis of an assessment of carbon mitigation and offsetting by 32 Queensland local Councils - five City Councils, 18 Regional Councils, eight Shire Councils, and one Aboriginal Shire Council.

2. City Councils included Gold Coast, Logan, Redland, Townsville, and one other. Regional Councils included Blackall-Tambo, Cairns, Goondiwindi, Mackay, Moreton Bay, South Burnett, Sunshine Coast, Tablelands, Toowoomba, and nine others. Shire Councils included Banana Shire, and seven others. Wujal Wujal was the one Aboriginal Shire Council to participate.

3. Report findings on climate change and carbon mitigation actions by Queensland Councils are organised around five key themes:

    a. Sustainability and climate change leadership
    b. Carbon management and mitigation
    c. Carbon offsetting
    d. Carbon risk assessment
    e. Carbon price preparation

4. Two thirds of Queensland Council (21)[1] survey participants considered that climate change was an important issue for Councils.

5. Seventy percent of Queensland Council (22) survey participants reported that climate change would have some impact on Council operations.

6. Just over half of the Queensland Councils that answered the survey (16) reported they were a ‘little prepared’ for climate change challenges. One third (10) indicated they were ‘fairly prepared’ for climate change impacts.

[1] Numbers in brackets in the text refers to the number of respondents

7. Eighty percent of the Queensland Council respondents (26) reported compliance with statutory obligations or implemented other additional climate initiatives.

8. Six Councils, five of them coastal and one inland, with climate change plans, are proactively implementing climate mitigation actions.

9. Not surprisingly, metropolitan, larger and/or coastal Councils are more 'carbon-ready' than smaller, inland, rural Queensland Councils.

10. Climate change plans and carbon mitigation actions are mainly implemented by coastal Councils, and larger inland Councils (>30,000 resident population).

11. Key Council issues in the carbon mitigation and offsetting field included:

    a. the monitoring and measurement of greenhouse gas emissions
    b. assessing the cost effectiveness of particular mitigation and adaptation strategies, and
    c. developing the expertise to engage effectively in carbon markets.

12. Most Queensland Councils integrate climate mitigation actions into waste and water management plans, or environment plans.

13. Mainly City Councils and larger Regional Councils have climate change plans or policies.

14. Only a few larger Queensland Councils include clean energy business opportunities in climate change strategies.

15. Some 16 Queensland Councils included climate actions in a corporate plan, mainly by the larger Councils.

16. The average number of climate initiatives implemented, per Council were: All Councils (3.9); City Councils (9.2), Regional Councils (3.5), Shire Councils (1.3), and Aboriginal Shire Council (1).

17. Some 18 Queensland Councils reported reduction of carbon emissions to be either a low priority or not a priority at all.

18. 70% percent of the survey respondents (23) did not consider carbon mitigation guidelines in Council planning decisions.

19. Only 13 of the survey respondents (5 City, 6 Regional, and 2 Shire) had assessed their carbon emissions with a further five (4 Regional, and 1 Shire) planning to complete the exercise in future.

20. Council operations generating carbon emissions included landfill, energy, vehicle fleet, waste and water services, street lighting.

21. Council systems used to calculate emissions were NGERS (10), Excel spread sheets (7), and consultants (3).

22. Some 19 Council respondents (56%) reported that their greenhouse emissions were under the NGERS threshold of 25,000tCO_2-e[2].

23. A total of 433 carbon reduction actions were implemented by 30 Councils with the average per Council being 14. City Councils averaged 32.4, and Regional Councils averaged 12.8, while Shire Councils averaged 4. The main carbon mitigation actions related to energy (55%) water (17%) and waste efficiency (13%) and behaviour change (13%). Less than 3% were offset actions.

24. The top 20 carbon mitigation actions implemented by Councils were a range of smaller-scale energy efficiency measures, waste management, water conservation, and behaviour change (information, training staff) programs.

25. The main reasons for Councils to reduce emissions were: cost savings; environmental regulations; Council climate strategy; Council resolutions on climate change; and to demonstrate climate leadership.

26. Over half of Queensland Councils (17) did not assess or know the most cost effective emissions reduction actions.

27. Only Redland, Tablelands, and Townsville Councils purchased Green Power to reduce Council emissions.

28. The main functions Queensland Councils were investing in to reduce their carbon emissions were landfill management, energy efficiency, and waste management, followed by staff behaviour change, vehicle fleet, and solar power.

29. Some 18 Queensland Councils indicated carbon offsetting was not necessary or not a priority. Only seven large Councils were offsetting emissions; four planned to start offsetting in the next 12 months.

30. Half of Queensland Council survey respondents (17) were unsure about offsetting guidelines for Councils in the *Carbon Credits Act.*

31. Queensland Councils supported carbon offsetting by planting trees on Council land or in partnership with conservation organisations (9). They supported tree planting offset providers such as Ecofund Queensland, Greenfleet, and others.

32. Just four larger Queensland Councils in the survey paid for carbon credits through an Australian offset provider. One Council bought international carbon credits.

[2] Tonnes of carbon dioxide equivalent emissions (tCO_2-e)

33. Council functions for which some respondents sought offsets included vehicle fuel, electricity, community events, hire vehicles, and printed materials.

34. Principal reasons for Queensland Councils implementing carbon offsetting included:

    a. Council concern about climate impact
    b. Supporting conservation
    c. Being climate friendly
    d. Financially supporting offset projects.

35. Councils assessed that the main impacts of a carbon tax on their operation to be reflected in higher energy costs (22) and fuel costs (19), a greater need to manage land fill emissions (14), costs associated with compliance with the *Clean Energy Act* (13), and increased materials costs (12).

36. Council preparations for the carbon price were correlated positively to Council size and geographic location, and the degree to which carbon emissions were already being monitored and measured.

37. Some 13 Queensland Councils in the survey measured Scope 1 and/or Scope 2 emissions, while 15 Councils had not assessed emissions.

38. Of those Councils that participated in the survey, 14 Councils reported their landfill emissions liability being below the threshold of 25,000tCO_2-e while eight Councils reported being over this threshold. Moreton Bay and Sunshine Coast Regional Councils indicated their mandatory NGERS reporting of landfill emissions.

39. When asked to indicate what were the most preferred external inputs to assist Councils manage carbon mitigation and the impacts of the carbon price, the top three preferred forms of input included:

    a) Online information/data/tools about carbon mitigation by Councils,
    b) Provision of fact sheets about carbon price impacts on Council operations, and
    c) Software or consultants to measure and report carbon emissions.

40. Other areas of support suggested by Councils included utilisation of a web-based Marginal Abatement Cost Curve (MACC) tool to assess cost-effectiveness of mitigation actions, initiatives to assist asset managers to track the carbon intensity of Council assets, and training financial managers to understand and make prudential provision for contingent carbon risks.

Key Recommendations

Sustainability and climate change leadership

For key aspects required to establish a mitigation program, all Queensland Councils to:

a) Secure relevant experts to brief all Council managers and departments about the relevance of carbon mitigation actions
b) Establish a dedicated carbon reduction fund within the operating budget of Councils
c) Incorporate carbon reduction targets and actions into Councils' corporate or strategic plans.

Carbon management and carbon mitigation actions

Federal and State Governments should work with local government to:

a) Continue providing loans or matching co-contributions to fund mitigation actions by smaller Councils
b) Develop a mandatory code within QPP for the inclusion of passive and active energy efficiency in new developments. Include mitigation requirements within the Building Code Queensland
c) Consider incorporating relevant carbon mitigation guidelines in the 2012 review of the Local Government Act
d) Inform Councils about web calculators, carbon consultants and software to assess emissions
e) Resource a full time position for five years to focus on climate change for local government in Queensland
f) Develop a Queensland local government clearinghouse/website resource for climate information (eg WALGA www.walga.climatechange.com.au)

Carbon offsetting

State and Federal government and the private sector should continue to engage with local Councils to:

a) Provide information about carbon offsetting guidelines in the *Carbon Credits Act* to Councils and how to apply for Biodiversity Fund grants
b) Link Councils with large tracts of land to carbon offset providers seeking to plant trees or revegetate Council land.
c) Encourage Councils to purchase at least 5% Renewable energy to reduce or offset Council emissions

Carbon risk assessment and compliance

To ensure appropriate carbon risk assessment and compliance, Governments at all levels should give priority to:

a) Including the level of exposure to carbon emissions as part of risk assessment by Councils in operational plans

b) Assisting Councils to measure and track both Scope 1 and Scope 2 emissions
c) Providing technical advice to Councils on landfill emissions and flaring or capturing gas.

Preparing for the carbon price

To ensure optimal Council performance and efficiency in an economy where carbon is priced, all local Councils to:

a) Develop a Marginal Abatement Cost Curve (MACC) tool to guide Council investment in effective carbon mitigation actions
b) Train Council asset managers and financial managers to assess carbon intensity/liability
c) Budget for an estimated 10% increase in fuel, energy and materials costs from the carbon price.

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Climate Change Mitigation Survey of Queensland Local Councils

1. Introduction

1.1 Background

As part of the broader national response to global warming, local government in Queensland faces the challenge of implementing policy, organisational and technical initiatives to both mitigate its greenhouse gas emissions and adapt to the impacts of climate change. This includes compliance with greenhouse gas emissions thresholds under the National Greenhouse Energy Reporting *(NGER) Act 2007* and the *Clean Energy Act 2011.* In that context, this report reviews greenhouse gas mitigation and carbon offsetting measures implemented by Queensland local Councils at the City, Regional and Shire levels. Perhaps unsurprisingly given the enormous diversity of local governments in Queensland, this review found a very positive correlation between institutional size and capacity, coastal location and early action on climate change strategies and policies.

To ensure consistency with the terminology and definitions used by the sector, the study borrows from the Local Government Association of Queensland and treats "Mitigation" as involving the "actions to reduce greenhouse gas emissions being emitted to minimise the impact from climate change" (LGAQ, 2009, p. 58).

Commissioned by the Local Government Infrastructure Services (LGIS) the survey and analysis underpinning this report assessed the level of carbon management by Queensland Councils and their readiness to address carbon price impacts on Council operations. As a leading adviser and facilitator to the local government sector, LGIS specifically required further information on perceptions of the likely impact of the carbon tax on Council operations and the current state of preparedness by Councils including the level and type of carbon emissions reporting they undertook.

Expanding on a previous desktop review of climate change strategies, policies and actions adopted by Queensland local Councils (Zeppel, 2011a), this report outlines carbon mitigation, reporting, and offsetting actions by a range of Queensland Councils. It also identifies the types of support required to help local authorities manage their carbon risks and potential liabilities. Our survey covered a spectrum of topics aimed at revealing the Councils' carbon readiness by identifying their carbon mitigation and offset measures, motives for emissions reduction, and barriers to implementing carbon actions. It follows that the exercise will also be useful in assisting Queensland local Councils to benchmark their carbon mitigation actions and understand their liability from the carbon price to take effect from 1 July 2012.

1.2 Methodology

The climate change mitigation survey for Queensland Councils was based on carbon mitigation actions recommended in the Cities for Climate Protection (CCP) program, and a desktop review of climate change plans and carbon actions listed on Queensland Council websites (Zeppel, 2011a). The survey also adopted some questions from ICLEI's review of the CCP program (Hoff, 2010), and previous climate change surveys of New South Wales and Victorian local Councils (LGSA, 2006, 201O; MAV, 2007; Urbis, 2010).

Sustainability officers at two large Queensland Councils with climate change programs provided feedback on questions in the draft survey. A pilot survey was also conducted of 20 Greater Adelaide Councils in 2011 (Zeppel, 2011b; Zeppel and James-Overheu, 2012).

With input from LGIS regarding local government's preparedness for carbon pricing, our climate change mitigation survey framed 36 main questions organised in five sections:

A. Your Local Council
B. Climate Change
C. Climate Change Mitigation
D. Carbon Offsetting;
E. Preparing for the Carbon Price.

Included in the survey was a checklist of 64 carbon mitigation actions, provision for ranking of Council motives for carbon actions, and a series of open-ended questions on issues or reasons for assessing emissions and carbon actions by Councils.

This most comprehensive climate change mitigation survey was circulated to all 73 Queensland Councils. Subsequently, feedback was obtained from two participating Regional Councils and the Local Government Association of Queensland regarding the key recommendations arising from this study.

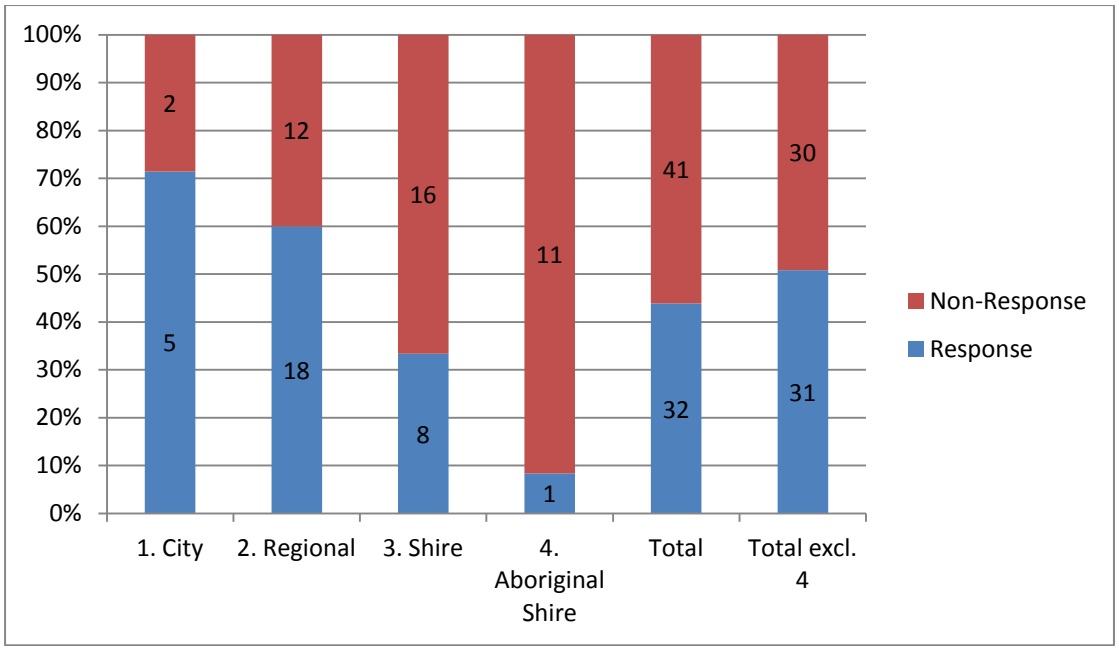
This report provides a summary of responses to questions in the ACSBD/LGIS 'Climate Change Mitigation Survey for Queensland Local Councils' provided by 32 Queensland local Councils between January and May 2012. It includes responses and comments by Council officers about Queensland Council actions on climate change, carbon mitigation, carbon reporting, carbon offsetting, and carbon price impacts.

A total of five (of seven) City Councils, 18 (of 30) Regional Councils, and eight (of 24) Shire Councils completed the survey (Figure 1). Only one (of 12) Aboriginal Shire Councils (8.3%) prepared a response. Excluding the Aboriginal Shire Councils, the response rate for this carbon survey among all other Queensland Councils (31 of 61) was 51%.

Of the 41 Councils that did not complete the survey, some advised they lacked climate change policies, had limited staff or resources, were unsure about their carbon emissions, or did not have Council positions/areas that addressed climate change issues.

Survey responses are reported for all participating Councils (32) and are categorised by Council type – City Council (CC), Regional Council (RC), Shire Council (SC), and Aboriginal Shire Council (ASC) - because of their varied size and capacity to implement carbon actions. Survey responses are aggregated for each question. While some Councils consented to specific details of their Council's mitigation measures being identified or linked with comments in the report, others responded on a confidential basis only. These latter Councils are referred to by type, and geographic location (coastal or inland).

Figure 1: Responses by Council Type



1.3 Survey results

The survey findings on climate change and carbon mitigation by Queensland Councils are discussed under five themes:

- Sustainability and Climate Change Leadership
- Carbon Management and Carbon Mitigation Actions
- Carbon Offsetting
- Carbon Risk Assessment and Compliance
- Carbon Price Preparation

Reflected in these five key themes there are considerable variations among the main types of Queensland Councils in terms of their greenhouse gas emissions assessment and reporting, carbon mitigation actions, and carbon price preparation. Overall, larger metropolitan and/or coastal Councils are more 'carbon-ready' than smaller inland rural Councils.

Our findings identify a clear requirement for Queensland Councils to assess emissions and cost effective emissions reduction actions. The implementation of a carbon price of $23t$CO_2$-e[3] from 1 July 2012 will impact on Council operations through the increased cost of energy, fuel and materials. In this new carbon regime, energy efficiency and cost savings will be key drivers for all Queensland local Councils to reduce carbon emissions and carbon liability. Financial efficiency alone dictates the importance of taking carbon management seriously with Queensland Councils already having a combined debt of over $6 billion (Passmore, 2102).

[3] Tonnes of carbon dioxide equivalent emissions (tCO_2-e)

2. Sustainability and Climate Change Leadership

Sustainability and climate change leadership was a leading theme in responses by Queensland Councils to the survey. This was reflected in the views of Council staff/divisions seen as responsible for climate actions, in the relative importance of climate change as an issue or driver of Council action, as well as being apparent in the climate change plans and initiatives adopted by some Queensland Councils. Clearly evident also in the survey responses to Part B: Climate Change and Your Local Council is the greater importance attached to climate change leadership by larger coastal Councils and some larger inland Councils (>30,000 residents). These climate leadership Councils have adopted climate change/greenhouse plans and related carbon mitigation actions.

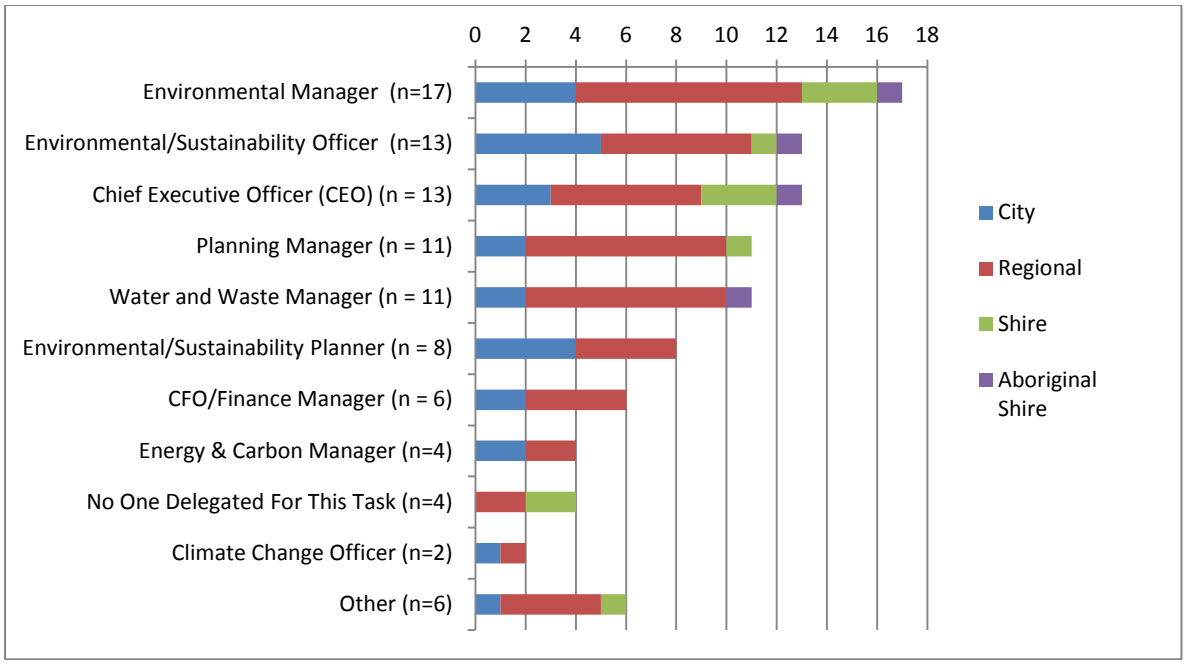
2.1 Role of Council staff in completing the survey

The climate change mitigation survey was completed mainly by Queensland Council staff with roles related to environmental, sustainability, and climate change areas. The City Councils and larger coastal Regional Councils had dedicated program leaders or coordinators responsible for implementing carbon actions. Environmental services officers primarily were responsible for completion of the survey at inland Regional Councils. At smaller Shire Councils, the survey was mainly completed by environmental health officers, or the CEO. At two smaller remote Councils (Regional and Shire Council), building and engineering staff completed the survey. Several Queensland Councils noted the survey was completed by staff across several departments or divisions, indicating the broad distribution of responsibilities and/or actions on emissions assessment and carbon reduction actions.

2.2 Council staff responsible for climate change issues

Environmental or sustainability managers, officers, and planners were identified as the key people in Queensland local Councils mainly responsible for climate change issues (Figure 2). Planning staff were the second group identified as covering climate change issues. The Water and Waste Managers, and CEO, were also identified by Councils as responsible for climate change actions. Only six Councils indicated their Finance Manager addressed climate change issues. Other Council staff responsible for climate change initiatives included the Infrastructure Manager (City Council), Fleet and Hydrology Managers (Regional Council), and Engineer (Shire Council). Just two City Councils, and two Regional Councils (1 metropolitan, 1 inland), had a dedicated Energy and Carbon Manager, or a Climate Change Officer. Five smaller rural Councils had no one delegated to climate change issues. Mackay Regional Council reported 'There is no one person delegated for this task,' with climate change issues covered by a sustainability officer, the planning manager, and a sustainable futures advisory committee.

Figure 2: Personnel Responsible for Climate Change Issues



2.3 Council division responsible for climate change issues

The Planning and Environmental Sustainability divisions of Councils (19)[4] were identified as most responsible for climate change issues, along with the Environmental Services (water, waste) (9) and Corporate/Finance areas (9). Only 14 Queensland Councils identified their Manager/CEO (10), or their Mayor and Councillors (5), as responsible for climate change issues (Figure 3). Other designated areas were Policy and Planning (5), and Infrastructure Services (5), followed by Assets and Environment (3), and Community Development (2). Other Council areas reported as responsible for climate change included a spectrum of functions including environmental health and building services, 'Health, Security and Regulatory Services Department', 'Environmental Planning and Compliance', 'Regulatory Services', 'Building Services', and 'EHS.' Asset, building, and fleet managers at Councils all have a key role in reducing carbon emissions. Just two City Councils (Logan and Townsville) and two coastal Regional Councils (Sunshine Coast and one other) had a dedicated sustainability unit or division to implement climate change plans and carbon mitigation actions.

2.4 Importance of climate change at Councils

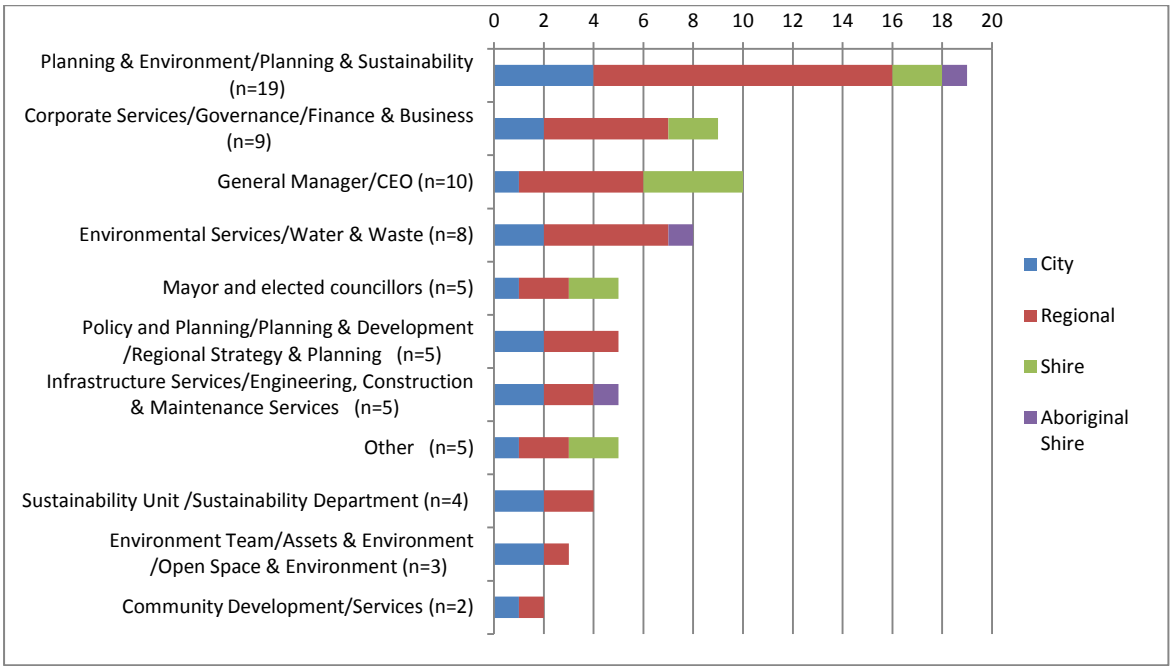
Two thirds of surveyed Queensland Councils (21) considered that climate change was an important issue for local government. This included all five City Councils, and three quarters (72%) of Regional Councils (13 of 18), but only two Shire Councils (25%).

Climate change was considered important because of the potential impacts on Council infrastructure, service delivery, risk minimisation, community safety, biodiversity, and economic development. Townsville City Council summarised the importance of climate change as deriving from the 'the impact it will have on the services we provide to the

[4] Numbers in brackets in the text refers to the number of respondents

community, the infrastructure we build and maintain as well as the natural environment and biodiversity of the city and the nation as a whole'.

Figure 3: Council Division Responsible for Climate Change Issues



Two thirds of Shire Councils (5) and three inland Regional Councils reported that climate change possibly was an important issue, but could also be the result of natural weather variability, and anyway there was a lack of resources to address impacts. One Shire Council reported that it was an 'important [issue] but only state and federal agencies have resources to implement change.' A remote coastal Regional Council and two smaller inland Councils (one Shire, one Regional) were not sure whether climate change was an important issue, because they considered there was limited climate change evidence and Council did not have a formal perspective on the issue. It should be acknowledged that mainly Council environmental staff completed this survey and other staff in local government may have different opinions on climate change.

2.5 Impact of climate change on Council operations

A majority of surveyed Councils (22) including especially coastal Shire and Regional Councils indicated that climate change would have 'some impact' on Council operations. Three Regional Councils (2 coastal, 1 inland) considered that climate change would have a 'significant impact' on Council operations. Townsville City Council reported there would be some impact to significant impact on its operations. Just six mainly inland Councils, including one City Council, considered that climate change would have 'little if any impact' on Council operations. Surveyed Councils were unanimous in dismissing the prospect of 'no impact' at all from climate change.

2.6 Council preparation for climate change

The survey shows that Queensland local government is still a long way from taking climate change very seriously. Just over half of all surveyed Councils (16) indicated they

were 'a little prepared' for dealing with the challenges of climate change. This included half of the Regional Councils (8) and most Shire Councils (5). Of the two City Councils that were 'a little prepared', one had a draft climate change plan while the other coastal Council had adopted a range of climate change actions that recognised growing coastal impacts. Another one third of Councils (10) indicated they were 'fairly prepared' for climate change impacts, including five inland Regional Councils, and two coastal Regional Councils with climate change plans, along with Gold Coast City Council. Then there are the opposite ends of the spectrum with one inland Regional Council being unsure how prepared it was for dealing with climate change and one remote coastal Regional Council 'not prepared' at all, while a City Council reported it was 'very prepared' for climate change having 'developed a Climate Change Adaptation Plan'.

2.7 Council response to climate change action

Among 26 surveyed Councils (Table 1), 13 are either complying with statutory obligations on climate change or implementing other additional climate initiatives beyond legal requirements as resources allow (13). Half of the Regional Councils (6 inland/3 coastal; 2 metropolitan/7 rural), and three inland Shire Councils are basically complying with their statutory obligations on climate change. Three City Councils (2 inland/1 coastal), five Regional Councils (3 coastal/2 inland) and four Shire Councils (2 coastal/2 inland) engage in climate change initiatives beyond statutory requirements as resources allow. Only six Queensland Councils, mainly coastal Councils with climate strategies, and one inland Shire Council involved in the CCP program, were proactively pursuing climate change actions. These proactive coastal Councils included Gold Coast, Townsville, Cairns, Sunshine Coast, and one remote Regional Council affected by climate change impacts. Just one coastal Council, Cairns Regional Council, was integrating climate change thinking and actions into all areas of Council operations. This North Queensland Council is in an area heavily impacted by cyclones and coastal erosion.

Table 1: Council Response to Climate Change Action

Climate Change Response	Ab. Shire Council (coastal/inland)	Shire Council (coastal/inland)	Regional Council (coastal/inland)	City Council (coastal/inland)	Total
Statutory	1/0	0/3	2/7	0/0	13
Additional	0/0	2/2	3/3	1/2	13
Proactive	0/0	0/1	3/0	2/0	6
Integrated	0/0	0/0	1/0	0/0	1

2.8 Types of Council climate change strategies or policies

Climate change actions are included in waste, water, climate change, environment, and energy plans prepared by Queensland Councils (Table 2). The 32 surveyed Councils are integrating climate change or carbon reduction actions mainly into their waste and water management plans. This approach is also related to the increased charges for bulk water services being set by the Queensland State government as well as the impact of the waste levy established by the former Bligh Government.

Dedicated climate change plans have mainly been prepared by City Councils and larger Regional Councils. About one quarter of surveyed Queensland Councils include climate actions within an environmental policy (9) or healthy environment plan (9). Moreton Bay Regional Council noted their 'Community plan has targets on emissions reduction and (a) Sustainability Policy.' Cairns Regional Council also had a 'Corporate Sustainability Policy,' while Banana Shire Council addressed climate change in its 'Environmental Management Plan.' Three participant Shire Councils had no climate policies/plans.

Only a few City Councils and larger Regional Councils have developed official policies on climate change, sustainability, renewable energy, or carbon emissions. Peak oil and sustainable energy actions plans have also been devised by just a few metropolitan Councils. One City Council had a draft combined climate change strategy and peak oil plan. Climate change strategies were also in preparation (2011/12) for Logan City Council, Moreton Bay Regional Council and Whitsunday Regional Council. South Burnett Regional Council also reported it was 'about to develop Biodiversity and Climate Change strategy.'

Table 2: Climate Change Strategies Prepared by Queensland Councils

Climate change strategy	Aboriginal Shire Council	Shire Council	Regional Council	City Council	Total N
Waste management plan	1	2	13	4	20
Water management plan	1	2	11	2	16
Climate change strategy or plan	0	1	6	4	11
Climate change risk assessment	0	0	6	4	10
Healthy environment/ Community well-being plan	1	1	4	3	9
Climate change adaptation plan	0	0	3	4	8
Greenhouse gas/Carbon neutral plan	0	2	3	3	8
Sustainable energy action plan	0	0	2	2	4
Environment action plan	0	0	2	1	2
Energy transition plan	0	0	1	1	2
Peak oil plan	0	0	1	1	2
Other	0	1	3	1	5

2.9 Functions covered in Council climate change plans

The climate change strategies prepared by Queensland Councils cover key topics such as waste reduction, community education/engagement, and energy efficiency, water conservation, and sustainable living programs (Table 3). Other areas covered in climate change plans include sustainable transport (eg bikeways, public transport), sustainable business (eg industry, agriculture), and renewable energy initiatives (eg solar power). Climate change adaptation, risk assessment, land use planning, infrastructure, and nature conservation are also considered in some strategies. One remote northern island Council considered 'climate change migration' as an issue in its plan. Only a few larger

coastal or urban Councils incorporate clean energy business opportunities within their climate plans. Most climate plans regard carbon mitigation as a cost rather than an opportunity. Just two coastal Shire Councils had climate change plans, mainly covering energy, water and waste efficiency. Five Shire Councils and two inland Regional Councils did not respond as they had no climate change plans.

The climate change plans by larger metropolitan Councils included both mitigation and adaptation actions:

'emissions targets; planning scheme policy and code development; carbon reporting; carbon sinks; regional engagement; research support; all aspects of adaptation - from disaster management to insurance' (Logan CC)

'High level risk assessment across land use planning, community facilities, water services, waste management, road infrastructure, and street tree and natural environment' (Toowoomba RC)

Other aspects addressed in climate change plans by larger mainly coastal Councils included adaptation, energy transition, land use planning, strategic planning, and environmental conservation. Risk assessment of climate change impacts on Council assets was a focus for two inland Regional Councils, but overall the main focus among Councils was on introducing carbon mitigation actions rather than on comprehensively assessing risk.

Table 3: Functions Covered in Council Climate Change Plans

Climate Change Areas	Ab. Shire Council	Shire Council	Regional Council	City Council	Total
Waste Reduction	1	2	8	4	15
Community Education	1	1	8	5	15
Energy Efficiency	0	3	6	5	14
Water Conservation	1	2	6	3	12
Sustainable Living	1	0	6	4	11
Sustainable Transport	0	1	5	4	10
Other	0	0	6	3	9
Sustainable Business	0	0	3	5	8
Renewable energy	0	0	3	5	8
Clean Energy Business	0	0	2	3	5

2.10 Climate change actions in Council corporate plans

Just over half of surveyed Queensland Councils (16), mainly larger Regional Councils (10) and City Councils (4) reported including climate change actions into their corporate or strategic plans. Among smaller Shire and Regional Councils (6) climate actions were not included in the corporate plans. Eight respondents (one City, five Regional and two Shire Councils) indicated uncertainty about whether climate actions were incorporated into their Council's strategic plan. Overall, the survey findings reveal that carbon actions by Councils are more likely to occur when climate change policies and targets are included in a corporate plan.

2.11 Council information sources on climate change

The public sector remains the main source of information for Queensland Councils seeking to up skill about climate change issues (Table 4). Most reliance is placed on other local government groups (eg QLGA, ALGA, LGMA, ICLEI, and LGIS) (40%), including other local Councils and local government conferences, and then on Federal or State government departments for environment, climate change, clean energy, or local government (33%). The next tier of information was obtained from green companies and associations (eg sustainable technology, renewable energy, green building) (14%), followed by climate change seminars, the CSIRO, and university climate research (11%).

Table 4: Sources of Council Information on Climate Change Issues

Information Sources	Number
Local government	**Total: 100**
Local Government Association of Queensland (LGAQ)	30
Other local Councils	18
Local government conferences	14
Australian Local Government Association (ALGA)	12
Local Government Managers Australia (LGMA)	7
ICLEI Oceania	8
Local Government Infrastructure Services (LGIS)	6
Australian Centre for Local Government	2
Planning Institute Australia	1
LG Officer Network	1
IPWEAQ, TSRA, LSMU	1
Government agencies	**Total: 83**
Dept of Environment and Resource Management	22
Dept of Climate Change and Energy Efficiency	15
Queensland Office of Climate Change	14
Queensland Office of Clean Energy	11
Dept of Local Government and Planning	10
Low Carbon Australia	5
Ecofund	4
Queensland Treasury Corporation	2
Green companies/carbon consultants	**Total: 36**
Green Building Council of Australia	6
Private providers/consultants	6
Australian Green Infrastructure Council	5
Environmental organisations	5
Sustainable technology companies	4
Clean Energy Council	3
Australian Sustainable Built Environment Council	2
Renewable energy companies	2
Sustainable Energy Association of Australia	2
Sunshine Coast Clean Tech Industries Association	1
Climate change research/programs	**Total: 29**
Climate change conferences, seminars	13
CSIRO Climate Adaptation or Energymark program	7
University research on climate change	7
National Sea Change Taskforce, SEA CARI, NCCARF	1
IPPC and Bali climate declaration	1

The initiative of Councils in sourcing climate and carbon information is very reflective of institutional capacity within the Council and the degree of interest in the issue. Few Queensland Councils, for example, sought information from specialist agencies like Ecofund Queensland on offsetting (4) or Low Carbon Australia on energy efficiency (5). Two larger Councils utilised private carbon consultants (eg ARUP, Marsden Jacobs and Associates, Climate Risk, and Energex), while two smaller Shire Councils relied on an NRM group and the Central Queensland LGA for climate change information. Larger coastal Councils also obtained information from national and international groups addressing climate change. Shire Councils relied on local government groups and government agencies for climate information. Councils with a sustainability officer obtained more climate change information from a wider range of sources.

2.12 Types of Council climate change initiatives

Local government climate change initiatives are broad ranging, largely community focussed, educational in style, and often have efficiency as the key message. The main climate-related initiatives undertaken by half of Queensland's Councils (Table 5) include participation in the Cities for Climate Protection (CCP) program (16) and the annual Earth Hour Event held at the end of March (15). Other Council measures include carbon foot printing (14) holding climate seminars (8) and environmental certification (ISO 14001) (8) followed by the ecoBiz program (7) Water Week (7), the Low Carbon Diet (6), sustainable street lighting (5), and climate change workshops (5). Just three Regional Councils are involved in the Smart Energy Savings Program (2), Energy Efficiency Opportunities public reporting (2), and Community Energy Efficiency Program (1).

Other initiatives by coastal Regional Councils include the Living Smart program, Climate Smart Homes Program, and Energy Conservation Communities program, along with 'School program on climate change'; emissions reporting by 'Planet Footprint'; recycling week and green work week. Tablelands Regional Council had also completed an NGERS report on Council emissions. Only one or two City Councils have participated in the Solar City or other solar scheme, NABERS energy rating of offices, Climate Savers Smart Computing, Council Green Office program, or an NGERS report on emissions. Other reported climate actions (8) were energy performance contracts for Council buildings and a Network Demand Management project to reduce power use by Townsville City Council, while Redland City Council focused on energy efficiency programs for households. Shire Councils were involved in other climate-related initiatives such as 'National Tree Planting Day' and the 'Adaptive and Resilient Communities Program.'

Mainly City Councils and larger Regional Councils (>30,000 population) have participated in these climate change initiatives and carbon reduction programs. Five smaller Councils (2 Shire, 3 Regional) had not undertaken any climate change initiatives, mainly due to lack of funding or policies. The Aboriginal Shire Council had participated in a solar power scheme as its only climate action. The 18 Regional Councils implemented a total of 63 climate initiatives, five City Councils adopted 46 actions and eight Shire Councils put in place 11 climate-related initiatives. Overall, the average number of climate initiatives implemented per Queensland Council is: City Councils (9.2), Regional Councils (3.5), and Shire Councils (1.3). For Regional Councils, there was a difference in the average for nine inland Councils (2.6), with 16 of 24 climate actions implemented by Toowoomba and

Tablelands Councils, versus 36 climate actions adopted by nine coastal Councils (average = 4). Overall, the range of climate actions implemented were City Councils (7-11 actions), Regional Councils (0-10 actions), and Shire Councils (0-3 actions). Some 18 Councils implemented one to four climate change initiatives such as Earth Hour (6), carbon foot printing (5), CCP (5), Water Week (4), ISO14001 (2), and others (13). No surveyed Queensland Councils had participated in the City Switch Green Office program, Climate Ready Infrastructure Initiative, or Sustainable Regions Program.

Table 5: Climate Change Initiatives by Councils

Climate Change Initiatives	Ab. Shire Council	Shire Council	Regional Council	City Council	Total
Cities for Climate Protection	0	3	8	5	16
Earth Hour	0	2	8	5	15
Carbon Footprinting	0	1	8	5	14
ISO 14001 EMS	0	1	4	3	8
Information seminars	0	0	6	2	8
ecoBiz	0	0	2	5	7
Water Week	0	2	4	1	7
Low Carbon Diet	0	1	4	1	6
Sustainable Street lighting	0	0	3	2	5
Climate change workshop	0	0	3	2	5
ClimateSmart Cluster	0	0	1	3	4
NGERS report	0	0	1	2	3
Solar City/solar scheme	1	0	0	2	3

2.13 Community sectors for climate change actions

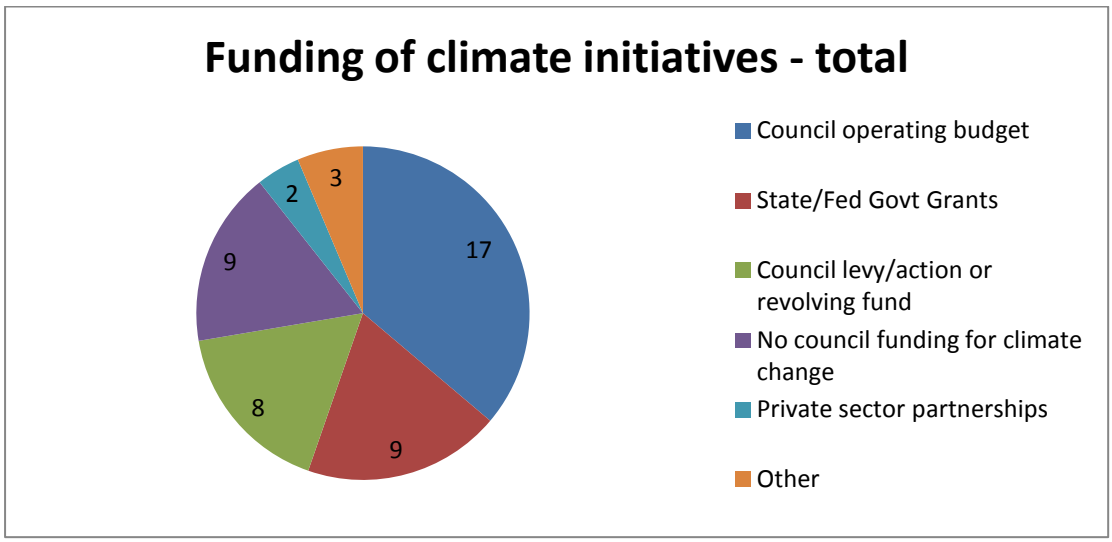
Households (15), community groups (12), schools/youth groups (12), and businesses (9) are the main groups that Queensland local Councils target and work with on climate change actions. There is only a minor climate focus by Queensland Councils on advising developers and landholders of climate change actions (4 each). Townsville City Council implements climate actions with 'NGO's – Conservation Volunteers Australia, Reef Check,' while Sunshine Coast Regional Council utilises Advisory Panels for advice on climate actions. Seven Councils did not respond, while three Councils do not work with any community sectors to implement climate change actions. The no response or no action option was from Regional and Shire Councils. However, new community plans and operational plans for Queensland Councils (eg Whitsunday Regional Council) include reducing carbon emissions as a goal.

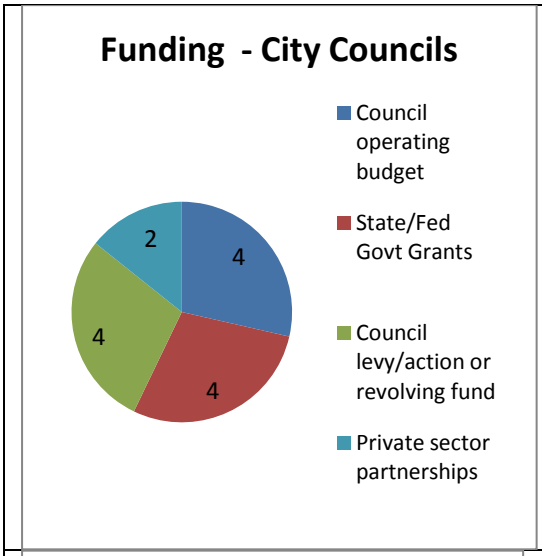
2.14 Council funding of climate change initiatives

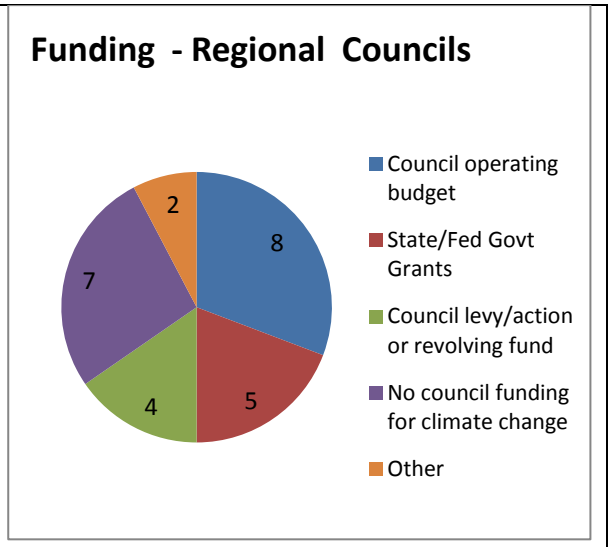
Climate change initiatives are mainly funded from Council operating budgets (17), along with government grants for climate programs (9) (Figure 4). The types of government grants used by larger Queensland Councils included the Local Adaptation Pathways Program(LAPP) (Townsville, Sunshine Coast); Solar City Scheme, and Caring for Our Country (Townsville City Council); and Strengthening Basin Communities by two inland Regional Councils. Most government grants funded adaptation actions rather than carbon mitigation, apart from solar programs. Only two City Councils had private sector partnerships such as: 'Ergon Energy partnerships' (Townsville CC) to manage power use.

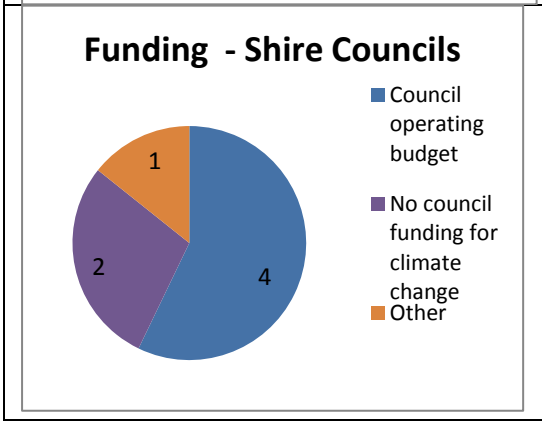
Ten mainly smaller, rural Councils had no funding for climate change actions. At coastal Regional Councils, climate change initiatives were also funded as a part of 'Strategic projects' (Cairns); or 'business sponsorship to offset events, NGOS implement program'; or it was 'low on budget priority' (urban). One Shire Council used their environmental health budget for climate change actions.

Figure 4: Council Funding of Climate Change Initiatives









Funding – Aboriginal Shire Council

The only Aboriginal Shire Council funded climate change action entirely from the Council operating budget.

Only a few Queensland Councils (8) had established an environmental levy, revolving fund, or action fund for climate initiatives. These included a revolving fund from energy savings at Mackay Regional Council (since 2009), and at Tablelands Regional Council, or an environmental levy at Logan City Council and South Burnett Regional Council. One inland City Council utilised all three sources of funding directed towards climate change initiatives (ie environmental levy, revolving fund from energy savings and a climate change action fund). One coastal City Council commented on a revolving fund 'tried it 2004 but it didn't work.' Two City Councils were utilising private partnerships with energy companies to implement climate actions, such as a 'partnership to provide discount solar hot water and PV to residents.' No other areas of Council income (eg dividends, parking revenue) were directed to climate actions.

Most Queensland Councils consider climate change an important issue that will have some impact on Council operations. They mainly comply with statutory obligations on climate change or implement other voluntary climate initiatives as resources allow. The majority of Queensland Councils integrate climate actions into waste and water management plans, while larger Councils have climate change plans. Only a few larger Councils include clean energy business opportunities in their climate change plans. These climate initiatives are mainly implemented by City (9.2), and Regional Councils (3.5), and the least by Shire Councils (1.3). Climate change leadership is mainly evident among coastal Councils and some larger inland Councils (>30,000 resident population), that have adopted climate change/greenhouse plans and related carbon mitigation actions.

3. Carbon Management and Carbon Mitigation Actions

Carbon management and carbon mitigation actions were a key theme in Queensland Council responses to the survey. This included carbon guidelines in Council planning decisions; the types of carbon mitigation actions adopted by Queensland Councils; cost effective carbon reduction actions and Council investment/opportunities in this area; and barriers to implementing carbon actions by Councils. This section mainly reports on survey responses to Part C: Climate Change Mitigation. Carbon management and carbon mitigation actions have mainly been implemented among larger coastal Councils and some larger inland Councils (>30,000 population). Smaller Shire and Regional Councils are less likely to have developed a carbon management strategy or mitigation actions.

3.1 Carbon mitigation guidelines in Council planning decisions

Most Queensland Councils (23) did not include or consider carbon mitigation guidelines (eg for renewable energy) in Council planning decisions. This was particularly the case for Regional Councils (16), with the exception of the Sunshine Coast Council. Three City Councils and three Shire Councils also did not consider mitigation in planning. Four Shire Councils reported that maybe this area was considered in planning decisions. Two larger urban Councils, Townsville and Sunshine Coast, referred to carbon mitigation guidelines in planning decisions, such as the use of renewable energy, and energy efficiency of buildings. Just one inland Shire Council with a population of 1,000 reported they also considered carbon mitigation guidelines in their planning decisions. One Regional

Council was not sure about this aspect. However, Council control of planning and development is a key area where carbon mitigation guidelines can be specified.

3.2 Carbon calculator for Council greenhouse emissions

The NGERS (or OSCAR) online calculator was used by ten Councils (3 City, 6 Regional and 1 Shire) to calculate their carbon emissions. Four City Councils and three Regional Councils used internal Excel spreadsheets to assess their carbon emissions. Another three larger Regional Councils employed Planet Footprint to calculate their carbon emissions. Cairns Regional Council developed an Energy and Emissions System database to track carbon emissions. Sunshine Coast Council used the ecoBiz calculator: 'Council ecoBized its top 10 emission generating sites.'

No Queensland Councils used calculators from ClimateSmart, ICLEI, CCP, Greenfleet, or Greenhouse Challenge Plus. Other carbon calculators used by Queensland Councils were based on 'National Greenhouse Accounts Factors' (Redland CC); 'Bespoke system for TCC and DCEE calculators' (Townsville CC); and 'Finance One' (Sunshine Coast RC). Toowoomba Regional Council used a 'Custom designed (by Council staff) suite of Excel spreadsheets from 2007/08 onwards' to assess carbon emissions.

Cairns Regional Council 'developed an Energy and Emissions System which is an intranet based system for entering all emissions data and is able to be used by all staff to generate energy and emissions reports. Reports are from high level down to specific facilities/assets.' One Aboriginal Shire Council used Queensland Department of Public Works spreadsheets to assess carbon emissions. Thirteen Queensland Councils did not state what type of carbon calculator (if any) was used to assess emissions.

3.3 Greenhouse gas methodology or reporting standard used by Council

The federal government NGERS (National Greenhouse Energy Reporting System) and National Greenhouse Accounts Factors are the two main reporting standards used by half of surveyed Queensland Councils (16) to assess emissions. NGERS determination was used by three City Councils and nine Regional Councils to calculate emissions. One City Council also used an energy audit standard (AS/NZS 3598:2000). No Queensland Councils used the data worksheets in the LGAQ guide, *Mitigating Climate Change,* or international greenhouse reporting standards. Eight Regional Councils and seven Shire Councils had no response on their greenhouse reporting. One Regional Council was unsure of their greenhouse reporting method, while Logan City Council reported 'no reporting standard used, but beyond NGERS – rated every appliance and included building features.' South Burnett Regional Council used NGERS and also reported 'Technology One Carbon accounting software recommended for future data capture.'

3.4 Data management issues in assessing Council carbon emissions

Key data management issues for Queensland Councils in assessing carbon emissions were tracking and reconciling energy and fuel accounts; coordinating data entry; lack of data for calculating landfill emissions; managing and sharing emissions data across Council areas; lack of support from some senior Council managers; and relevant software to generate reports on carbon emissions. South Burnett Regional Council reported: 'No historical landfill records available, therefore unable to calculate

quantities disposed during landfill life or accurately project future fuel or waste emissions.' Changing federal government guidelines and greenhouse reporting standards were other key data issues. Larger Queensland Councils mainly have internal databases and spreadsheets set up to track carbon emissions, while mid-range Queensland Councils tend to employ consultants or use software to report on energy and water accounts.

3.5 Types of emissions reduction initiatives Implemented by Council

Some 64 emissions reduction actions were listed in the survey. Overall, 30 Queensland Councils implemented a total of 433 carbon reduction actions, with the average number of carbon actions adopted per Council at 14. One inland Shire Council and one small coastal Regional Council did not list any carbon reduction actions. The five City Councils implemented 162 carbon actions (average = 32.4), the 18 Regional Councils employed 231 carbon actions (average = 12.8), while eight Shire Councils implemented 32 carbon actions (average = 4). Wujal Wujal Aboriginal Shire Council listed eight carbon actions.

Overall, the main types of emissions reduction initiatives implemented by Queensland Councils included Energy efficiency actions (235), Water efficiency actions (75), Waste efficiency actions (57), and Behaviour Change actions (55). Less than 3% of Council climate initiatives related to Carbon Offsetting actions (11). There was a wide range in the carbon actions adopted by different types of Queensland Councils, by size and geographic location. No surveyed Queensland Councils had installed mini hydroelectricity systems at a wastewater treatment plant, recovered biogas to power a wastewater treatment plant, or practised aquifer storage and recovery (ASR) of reclaimed water.

The top 20 carbon mitigation actions implemented by at least one quarter or more of surveyed Queensland Councils related to energy efficiency initiatives in Council buildings, waste reduction, water conservation and recycling, fuel efficient vehicles, and information for neighbouring Councils or residents on reducing emissions (Table 6). Larger Councils had a mix of carbon reduction actions across all types (ie energy, water, waste efficiency and behaviour) while smaller Councils often focused on one key area such as solar power or energy efficiency. Three Shire Councils though had a mix of five to seven carbon actions for energy, waste, water, and/or behaviour change (Banana SC).

Table 6: Carbon Mitigation Actions Implemented by Councils

Top 20 carbon mitigation actions	Number
Purchase energy efficient appliances (eg fridges)	21
Install energy saving CFL bulbs or LED lights in Council buildings	17
Practise recycling and minimise amount of solid waste	17
Install timers, daylight sensors or motion detectors on Council building lights	15
Install energy efficient computers in Council offices/Council libraries	14
Install water efficient technology in Council buildings	14
Practise rainwater harvesting (ie capture roof water from Council buildings)	14
Produce or use recycled water – Class A+, Class A, Class B, Class C	13
Implemented active waste reduction measures	13
Install roofing insulation in Council buildings and facilities	13
Operate new fuel efficient Council vehicles or vessels	13
Install water efficient technology in Council amenities blocks	13
Share information with neighbouring Councils on emissions reduction	11
Encourage self-composting of waste by residents and businesses	11
Provide information to residents on reducing their emissions	10
Solar powered public lighting (eg walkways)	10
Install solar or heat pump hot water heaters in Council buildings and facilities	10
Install energy saving fluorescent or LED lights in street lighting	10
Use ethanol mix (E10) for petrol-fuelled Council vehicles	9
Install solar photovoltaic (PV) power on Council buildings	8

The main energy reduction actions at Council buildings and facilities (Table 7) were buying energy efficient appliances, installing energy saving lights and light sensors, energy efficient computers, roofing insulation, solar or heat pump hot water heaters, solar powered public lighting, variable speed pumps at water plants and pools, and solar power. The main fleet actions (Table 6) were using fuel efficient vehicles, ethanol (E10) fuel, hybrid-electric vehicles, and using biodiesel. Logan City Council trialled B20 bio-diesel in its fleet, but a trial of hybrid-electric vehicles at Toowoomba Council was deemed unsuccessful. Mainly larger coastal and inland Councils installed solar power.

Table 7: Energy Efficiency Actions Implemented by Councils

Energy efficiency actions	Number
Council Buildings	
Purchase energy efficient appliances (eg fridges)	21
Install energy saving CFL bulbs or LED lights in Council buildings	17
Install timers, daylight sensors or motion detectors on Council building lights	15
Install energy efficient computers in Council offices/Council libraries	14
Install roofing insulation in Council buildings and facilities	13
Install solar or heat pump hot water heaters in Council buildings and facilities	10
Install solar photovoltaic (PV) power on Council buildings	8
Switch off Council appliances at the wall to reduce standby power	7
Implemented any other energy initiatives	6
Use room fans instead of air conditioners in Council buildings	2
	Total: 113
Council Facilities	
Solar powered public lighting (eg walkways)	10
Install energy saving fluorescent or LED lights in street lighting	10
Replace fixed speed pumps with variable speed pumps at water plants	8
Install energy efficient technology in Council amenities blocks	7
Install solar heating for Council owned public pools	7
Capture methane gas from Council landfills to generate power	6
Install energy efficient technology in Council caravan parks/camping areas	5
Use gas heating or gas hot water heaters in Council facilities	5
Solar powered parking meters	5
Use energy efficient technology in Council BBQs	4
Install Council-owned renewable energy generation systems	4
Purchase Renewable energy electricity from renewable energy for Council facilities	3
Use a solar dryer to dry out biosolids from sewage treatment plant	3
Install dynamic controls or voltage optimisation devices on street/carpark lighting	2
Install co-generation or tri-generation power plants at Council facilities	1
Install mini hydroelectricity systems in water distribution systems	1
Install solar power at wastewater treatment plant	1
Use absorption cooling technology for air conditioning	1
	Total: 83
Council Fleet	
Operate new fuel efficient Council vehicles or vessels	13
Use ethanol mix (E10) for petrol-fuelled Council vehicles	9
Drive electric cars or hybrid-electric Council vehicles	7
Use biodiesel mix (B5 or B20) in diesel-powered Council vehicles	6
Use of dedicated LPG fuelled vehicles as part of Council fleet	4
	Total: 39

Just three Queensland Councils purchased renewable energy, including Tablelands Regional Council, Townsville City Council, and Redland City Council (5% Renewable energy). Logan City Council had also 'initiated a regional Green Power purchasing concept, including Queensland renewable energy station.' Brisbane City Council in contrast 'has bought 100 per cent green power' (Hepworth, 2012). In further feedback, one respondent reported they had spent seven years trying to convince their large coastal Regional Council to purchase renewable energy.

Other energy efficiency actions were: 'Installing new electric ammonia chillers and VSD pumps in main Admin build. ($1mil.+ project)' (Logan CC), a 'Sustainability Scorecard' (Cairns RC), and an ''ecoBiz Cluster' (inland RC). Redland City Council had implemented 'voltage reduction at Council buildings, use building management systems; energy efficiency retrofit of all Council buildings and facilities.' City Councils focused on large-scale energy reduction actions.

The main water efficiency actions (Table 8) were installing water efficient technology, using recycled water, collecting rainwater, other water initiatives (ie leakage control), water purification, and stormwater harvesting. Three Councils used reverse osmosis to produce recycled water, and one inland Regional Council used a wetland to treat wastewater.

Only two Shire Councils used recycled water and just one practised rainwater harvesting and purification. Eight Regional Councils (5 coastal) had installed water efficient technology in Council buildings and facilities. Townsville City Council had initiated 'Water Sensitive Urban Design training and trails on emerging practices.'

Table 8: Water Efficiency Actions Implemented by Councils

Water efficiency actions	Number
Install water efficient technology in Council buildings	14
Practise rainwater harvesting (ie capture roof water from Council buildings)	14
Produce or use recycled water – Class A+, Class A, Class B, Class C	13
Install water efficient technology in Council amenities blocks	13
Install water efficient technology in Council caravan parks/camping areas	6
Implemented any other water initiatives	5
Use biological activated carbon filtration in your water purification process	3
Practise stormwater harvesting and filter through wetlands or bio-retention system	3
Use reverse osmosis to produce Class A+/Class A recycled water	3
Use a vertical subsurface flow constructed wetland for wastewater treatment	1
	Total: 75

The main waste efficiency actions implemented by Queensland Councils (Table 9) were recycling, waste reduction, composting organic waste, and other waste initiatives such as using recycled paper, gas flaring, and recycling bio-solids for pasture improvement. Two Shire Councils only listed one waste reduction measure while the largest Shire Council had three waste actions listed. Logan City Council was 'Investigating MSW gasification technologies.' Integrated waste reduction efforts at Townsville City Council included 'Recycling of white goods - degassing, cardboard compaction, concrete crushing, treating green waste to reduce methane emissions, GPS waste fleet tracking to reduce fuel use etc, community education, and work to increase TCC office recycling rates.'

Table 9: Waste Efficiency Actions Implemented by Councils

Waste efficiency actions	Number
Practise recycling and minimise amount of solid waste	17
Implemented active waste reduction measures	13
Encourage self-composting of waste by residents and businesses	11
Implemented any other waste initiatives	7
Use composting to treat wastes	4
Use anaerobic digestion to treat wastes	2
Use anaerobic digestion of sludge in wastewater treatment plant for biogas	2
Facilitate sewage/water mining by industry/developers	1
	Total: 57

The main behaviour change actions (Table 10) relate to Council's providing information on reducing carbon emissions, training Council staff, marketing carbon reduction actions, setting emissions reduction targets, choosing suppliers reducing emissions, and providing community rebates. Of the Shire Councils, only the largest (Banana Shire) had any behaviour change actions listed (4) related to emissions reduction information and community rebates. Nine Regional Councils had one to five behaviour change actions listed. Only Mackay and Toowoomba Regional Councils had implemented a green purchasing program, choosing suppliers taking actions to reduce carbon emissions.

Table 10: Behaviour Change Actions Implemented by Councils

Behaviour change actions	Number
Share information with neighbouring Councils on emissions reduction	11
Provide information to residents on reducing their emissions	10
Train Council staff or volunteers on your emissions reduction actions	8
Provide information to businesses on reducing their emissions	7
Market the emissions reduction initiatives of your Council	6
Include emissions reduction targets in Council corporate plans	5
Choose suppliers taking actions to reduce their emissions	4
Provide community rebates for energy/water/waste efficiency products	4
	Total: 55

Less than 3% of climate change initiatives by Queensland Councils related to Carbon Offsetting actions (11). Eight Queensland Councils supported offsetting through planting trees on Council land specifically for carbon reduction purposes. These included four Regional Councils (3 coastal, 1 inland) and four City Councils. Only three coastal Councils (Sunshine Coast and 1 other Regional Council, Redland City) supported a Council-funded offsetting scheme. Brisbane City Council also 'bought 100 per cent green power and offset its public transport and vehicle fleets' (Hepworth, 2012).

In summary, emissions reduction initiatives are correlated with the type, size and geographic location of Queensland Councils (Table 11). Coastal Councils have

implemented more emissions reduction actions than inland Councils. With the average number of carbon actions, the highest is by City, then Regional, and lastly Shire Councils.

Table 11: Emissions Reduction Initiatives Implemented by Councils

Type of Council (No.)	Energy	Water	Waste	Behaviour	Offsetting	Total	Average
City-Coastal (3)	55	15	14	12	4	100	33.3
City-Inland (2)	31	10	8	12	1	62	31.0
City – Total (5)	**86**	**25**	**22**	**24**	**5**	**162**	
Regional-Coastal (9)	78	27	19	22	5	151	16.7
Regional-Inland (9)	47	17	11	4	1	80	8.8
Regional-Total (18)	**125**	**44**	**30**	**26**	**6**	**231**	
Shire-Coastal (2)	7	2	2	1	0	12	6.0
Shire-Inland (6)	12	1	3	4	0	20	3.3
Shire-Total (8)	**19**	**3**	**5**	**5**	**0**	**32**	
Ab. Shire-Coastal (1)	**5**	**3**	**0**	**0**	**0**	**8**	8
Total-All Councils	**235**	**75**	**57**	**55**	**11**	**433**	

3.6 Reasons to implement emissions reductions initiatives at Council

Queensland Councils ranked the main reasons to reduce their carbon emissions from one (highest) to five (lowest). The major reasons for Queensland Councils to implement carbon reduction actions, by total responses, included:

1) Cost Savings (24)
2) Demonstrating Climate Leadership (15)
3) Environmental Regulations (12)
4) Council Climate Change Plans (11) and
5) Council Resolutions on Climate Change (9).

By rank order of responses (over 5 responses to a category) key reasons to reduce carbon emissions were (Table 12):

Cost Savings (1.8)
Environmental Regulations (2.2)
Council Climate Strategy (2.4)
Council Resolutions on Climate Change (2.6) and to
Demonstrate Climate Leadership (3).

Cost Savings was the top reason to reduce emissions for the majority of surveyed Queensland Councils (88%). Cost Savings was also ranked as the only motive to reduce carbon emissions by three inland Shire and two inland Regional Councils.

Demonstrating Climate Leadership, complying with Environmental Regulations such as the 'Queensland Govt Waste Management Strategy', or meeting targets in a Climate

Change Plan were also important reasons to reduce emissions for one third to half of the Council respondents. One remote coastal Council reported the only reason to reduce emissions was their climate change plan.

Other reasons cited as a reason to reduce Council emissions included certification (eg CCP); business reporting; the Queensland renewable energy plan; to attract low-carbon industry investment (3 City Councils, 1 inland Regional Council); preparing for carbon legislation; Queensland government Q2 carbon targets; and being a 'climate friendly' region.

Other reasons to reduce Council emissions were 'SEQ Regional Plan requirements' (Logan CC, ranked 2); 'prolonged drought throughout 90's and 00's' (Toowoomba RC, ranked 3); and to 'reduce climate change impact risk' (Cairns RC, ranked 5). Two inland Shire and two inland Regional Councils did not respond and had no reasons reported to reduce their emissions.

Table 12: Reasons to Reduce Council Carbon Emissions

Reason to Reduce Carbon Emissions	Number	Rank
Major reasons to reduce emissions (> 5 responses)		
Cost savings	24	1.8
Environmental regulations	12	2.2
Council climate change strategy/action plan	11	2.4
Council resolutions on climate change/energy efficiency	9	2.6
Demonstrate climate leadership to local businesses/residents	15	3.0
Minor reasons to reduce emissions (< 5 responses)		
Certification (eg CCP) **or permit requirement**	4	2.6
Business reporting legal requirement (eg NGERS)	3	2.6
Queensland renewable energy plan	3	3.0
Attract low-carbon industry investment	4	3.2
Other (ie *SEQ Regional Plan, drought, reduce climate risk*)	3	3.3
Preparation for energy trading schemes/carbon legislation	4	3.5
Queensland government climate change strategy/Q2 carbon targets	3	4.3
Differentiate your Council as a 'climate friendly' region	5	4.7
Premier's Statement on carbon emissions	1	3.0
Energy efficiency opportunities public report	1	4.0
Climate Ready Infrastructure Initiative	1	5.0

3.7 Reasons for not Implementing emissions reductions initiatives at Councils

The main barriers cited by survey participants as impediments to implementing carbon reduction actions were: cost and lack of funding; reliance on the operating budget; lack of Council policies; indifference to climate change by some Councillors and managers; lack of staff to implement climate action; and environmental regulations such as 'restrictive DERM licence conditions on WWTPs (waste water treatment plants)', and uncertain RECs (renewable energy certificates) market over past 3 years.'

One City Council reported a barrier was 'lack of funds for any mitigation even though demonstrated return is three to five years. Things are very tight.' Shire Councils were also 'too small to qualify for most funding and grants' or had a 'low return on investment in terms of impact.' South Burnett Regional Council reported that developing a Climate Change Strategy, an emissions audit and MACC tool 'will provide direction for future emissions reduction initiatives.'

3.8 Council opportunities to reduce carbon emissions

The main opportunities identified by Queensland Councils to reduce their carbon emissions (Table 13) were through managing methane from landfills, including through 'MSW gasification (eg steam reformation or plasma, not methane generation)', allied with waste management and recycling initiatives such as 'improved organic matter management'. This was followed by planting trees on Council land for carbon offsetting, and green building design for new Council buildings, focusing on sustainability and energy efficiency. These included 'New build to green Star level, retrofits to NABERS level,' and a focus on 'tropical design and energy efficiency'. Investment in renewable energy, mainly solar power, was also listed.

Logan City Council highlighted a 'Regional renewable energy station eg solar thermal; (and) working with State to generate commercial PV installation incentives.' One Shire Council in North West Queensland focused on renewable energy from geothermal power as a future opportunity.

Other additional measures cited by Councils included water/wastewater management such as 'recent technologies that treat waste'; behaviour change programs such as staff training or 'ClimateSmart business clusters'; utilising sustainable technologies (ie lighting, cooling, IT); and integrated projects such as electricity demand management.

Table 13: Council Opportunities to Reduce Carbon Emissions

Emission Reduction Opportunities	Shire Council	Regional Council	City Council	Total
Waste Management and Recycling	3	9	4	16
Landfills	3	9	3	15
Plant Trees on Council Land	2	8	4	14
Green Building Design	0	8	4	12
Renewable energy	3	4	4	11
Water/Wastewater Management	1	4	4	9
Eco-efficiency Measures	0	4	4	8
Sustainable Technologies	1	3	3	7
Leasing Council Land	3	3	0	6
Integrated Council Projects	0	3	2	5
Carbon Offset Markets	0	2	1	3
Other Business Opportunities	0	1	1	2

Only six Councils identified leasing Council land for renewable energy projects. Just one City Council and one Regional Council in SEQ listed carbon offset markets as an opportunity, with one building a 'portfolio of offsets'. Other opportunities to reduce

carbon emissions were through 'continued retrofit of facilities' and 'joint ventures with other businesses and local community.' Five Councils (3 Regional, 2 Shire) did not respond or list any opportunities in reducing their carbon emissions. Larger City and Regional Councils focus on opportunities to reduce emissions through significant investments in renewable energy, and green building, while smaller Shire Councils focus on recycling waste or future potential in renewable energy options.

If Queensland Councils are to implement feasible carbon reduction strategies, they should identify the full range of opportunities to use their land and assets to reduce carbon emissions. Strategic partnerships with energy providers (eg demand management, performance contracts, bio-energy) could also help reduce emissions.

The main carbon emissions reduction opportunities identified by each type of Queensland local Council, are listed below:

City Council:
'MSW gasification', 'waste reduction', 'SCWO' [Super-Critical Water Oxygenation], 'Regional renewable energy station, eg solar thermal, commercial PV installation incentives', 'solar farming', 'adopt new internal standards for Council buildings', 'tropical design and energy efficiency', 'ClimateSmart business clusters; publications' website', 'Rankin cycle engines, new chillers, 'Hydro' energy', 'lighting, IT and air conditioning', 'Electricity demand management project', 'continued retrofit of facilities'

Regional Council:
'improved organic matter management', 'recycling, diversion and composting', 'solar', 'solar', 'New building-Council', 'New build to green Star level, retrofits to NABERS level', 'lights off, eco-driving, waste recycling, power down campaign, video conferencing etc', 'joint ventures with other businesses and local community', portfolio of offsets'

Shire Council:
'Waste diversion', 'recycling', 'tyres/steel', solar power', 'geothermal', 'lighting'

3.9 Carbon mitigation actions by Council - next three years

The surveyed Queensland Councils listed a range of carbon reduction initiatives over the next three years related to: landfill/waste management, energy efficiency, renewable energy, vehicle fleet, and behaviour change. Capturing methane gas from landfills for flaring or electricity generation was a priority for Townsville City Council, Toowoomba Regional Council, and one coastal Council in Central Queensland.

Two larger urban Councils focused on building management systems, and network demand management with a power company. City Councils (eg Gold Coast, Redland) and some larger Regional Councils (Cairns, Sunshine Coast) will continue to implement actions in their climate change strategies to meet emissions reduction targets.

Other larger Councils (eg Logan, Moreton Bay, and South Burnett) are developing climate change strategies. One Shire Council in Western Queensland listed carbon offset opportunities and soil carbon, while Moreton Bay Regional Council aimed to increase carbon in conservation areas using biodiversity funding. However, at three Shire and three Regional Councils proposed carbon mitigation actions were 'not planned', 'unknown', 'nil', 'none' or 'not assessed.'

Another seven Councils did not provide information (4 Shire, 2 Regional, 1 City) about their future carbon mitigation actions, although the Gold Coast City Council has a list of abatement measures in their climate change plan. Overall, there is limited forward planning by non-urban Queensland Councils on implementing carbon reduction actions.

The main carbon mitigation actions over the next three years, reported by each type of Queensland Council, are listed below:

City Council:
'New AC chillers; building energy efficiency measures; Business cluster engagement; SCWO desk-top study; Council approval of the Draft (Climate Change) Strategy (Logan); 'Methane capture at landfills, CBD Central Cooling Project, energy performance contracts, Network Demand Management, replacement of halogen street lights, Townsville Smart City Solar City (Townsville)

Regional Council:
'climate change strategy', 'biodiversity and climate change strategy', 'minimise electricity usage' (RC); 'harvesting methane from Landfill, eco-efficiency measures', 'Energy efficiency of Council buildings, improve organic matter retrieval from the waste stream', 'energy efficiency initiatives and sustainability policy, community education and engagement', 'Carbon Reduction Pathway project with MAC curves and tools', 'Landfill gas collection and flaring and/or electricity generation, More solar PV installations, Higher % of diesel vehicles versus ULP', 'Landfill gas capture and organics diversion, behavioural change programs, agreed pool temperatures, energy efficiency projects, Building Management Systems, High level insulation, efficient lighting retrofits switch fleet to biofuels'

Shire Council:
'carbon offset opportunities, support renewable energy generation, soil carbon', 'electrical efficient products. Possibly solar installations'

Survey responses indicate that Queensland Councils are reducing their carbon emissions mainly through managing methane from landfills, waste management and recycling, planting trees on Council land, and using renewable energy.

Carbon management has been implemented mainly by larger coastal Councils and some larger inland Councils (>30,000 population), while smaller Shire and Regional Councils are less likely to have adopted carbon mitigation actions. Recent carbon initiatives

include an intranet Energy and Emissions System database for Cairns Regional Council to track energy/fuel accounts and provide reports on carbon emissions down to facility/asset level. Over the next three years carbon mitigation actions by Councils will include building management systems and network demand management, landfill gas capture, solar PV, and carbon offset options.

4. Carbon Offsetting

Carbon offsetting, as a specific type of carbon reduction method, was also a key theme explored in the survey. According to the Queensland Local Government Association a carbon offset "is an [additional] investment in a project or activity that reduces greenhouse gases' (QLGA, 2009). This section of the report covers survey responses to Part D: Carbon Offsetting, including Council involvement in offsetting, types of offset providers/projects supported, motives for carbon offsetting, and Council benefits. Our survey also assessed Council knowledge of offsetting guidelines under the Carbon Farming Initiative (CFI). Mainly larger Queensland Councils are involved in offsetting emissions from electricity, vehicles, or events and the preferred offset action is tree planting.

4.1 Council participation in carbon offset program

Eighteen Queensland Councils indicated carbon offsetting was not necessary, or not a priority, while four Councils reported it was a future step (Table 14). Seven Queensland Councils were partly offsetting their carbon emissions, including five City Councils, the Sunshine Coast Regional Council, and a coastal Council.

Townsville City Council offset its 'community event Eco Fiesta.' Three Regional Councils, one of them inland, and one Shire Council in western Queensland planned to start offsetting in the next 12 months. Six other Regional Councils and the largest Shire Council focused on reducing their carbon emissions rather than offsetting. Most Shire Councils and three inland Regional Councils did not consider carbon offsetting was necessary due to their small size and lower populations. Not one Queensland Council offsets emissions totally, although four Councils plan to be carbon neutral by 2020 (Brisbane, Cairns, Gold Coast, and Sunshine Coast). Brisbane City Council 'has offset its public transport and vehicle fleets' (Hepworth, 2012).

Table 14: Carbon Offsetting by Councils

Carbon Offsetting	Ab. Shire Council	Shire Council	Regional Council	City Council	Total
No - not necessary	1	6	4	0	11
No - not a priority	0	1	6	0	7
Yes - partially offset	0	0	2	5	7
No - next 12 months	0	1	3	0	4

4.2 Council position or policy on carbon offsetting

A few City and Regional Councils commented on their Council's position or policy on carbon offsetting. This included offsetting as part of a carbon neutral policy (Gold Coast); an unofficial position to reduce emissions first, then to utilise mandated offsets (Logan); and some initial investment in offsets (Redland). The carbon neutral plan for the Sunshine Coast Regional Council requires offsetting of residual emissions by 2020. Cairns Regional Council also has offsetting requirements as 'Council has carbon neutrality in its carbon reduction goal for 2020.' Other coastal Councils offset events, or wanted to learn more, but it was a low priority for one inland Council. South Burnett Regional Council reported it was 'willing to investigate options that can be incorporated and enhanced within existing Council operations and the possibility of working with landholders and industry to provide carbon offsets or credits.'

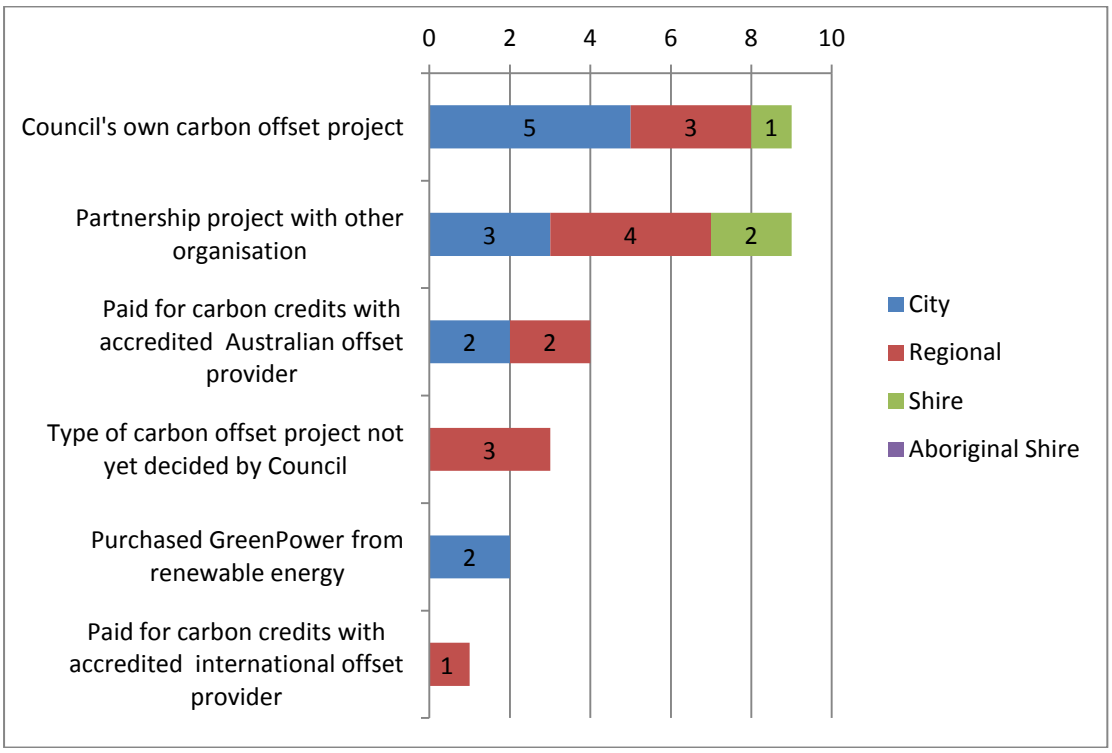
4.3 Council investment in carbon offset projects

Between 2004 and 2010, the five City Councils started investing in carbon offset projects. Two coastal Regional Councils began buying offsets from 2010 or 2011, while two others planned to fund offsets from 2014. One Shire Council in Western Queensland indicated it invested in offset projects from 2010-11 'through research'. Another 22 Queensland Councils did not indicate when they would start investing in offsetting, as it was not a priority or it needed an official Council position on offsetting.

4.4 Type of carbon offset project implemented/planned by Council

Mainly larger City and Regional Councils have implemented or have planned carbon offsetting. Ten Queensland Councils (5 City, 3 Regional, 2 Shire Councils) in the survey supported carbon offsetting - by planting trees on Council land, and/or in partnership with organisations involved in regional tree planting (Figure 5). Just four survey respondents have paid for carbon credits through an Australian offset provider. These included the Gold Coast and Townsville City Councils, Sunshine Coast Council, and another coastal Regional Council. Only the Sunshine Coast Regional Council had paid for carbon credits through an international offset provider. Three other larger Regional Councils, one of them inland and the Wujal Wujal Aboriginal Shire Council, had not discussed or decided on the type of carbon offset project. Only Redland and Townsville City Councils had purchased renewable energy to offset Council emissions. Another 16 Queensland Councils (10 Regional, 6 Shire) did not respond to this offsetting question.

Figure 5: Carbon Offset Programs Implemented by Councils



4.5 Types of Council emissions offset

The few Councils offsetting their emissions are mainly applying it to vehicle fuel and electricity for the Council office and facilities (Table 15). Townsville City Council also offset fuel in hire vehicles used by staff. Two larger coastal Councils were offsetting their events: 'community event-Eco Fiesta' (Townsville) and 'Event based (air transport, electricity, fuel (car/truck).' Logan City Council offset all its printed materials, while at Redland City Council offsetting was 'general ie total emissions offset.' There was ad hoc offsetting of airline travel by staff at Sunshine Coast Council. Mackay Regional Council had not decided on the type of emissions offsetting. Most Regional and Shire Councils (20) did not respond about the types of emissions offset. They were below the NGER threshold of 25,000tCO_2-e that required reporting emissions.

Table 15: Types of Emissions Offset by Councils

Emissions Offset	Shire Council	Regional Council	City Council	Total
Vehicle or plant fuel	1	1	2	4
Council office electricity	1	1	2	4
Council facilities electricity	1	1	1	3
Airline travel (Council staff)	0	1	0	1
Council printed materials	0	0	1	1
Not decided yet	0	1	0	1
Fuel usage (hire vehicles)	0	0	1	1
Other *(ie events)*	0	1	2	3

4.6 Carbon offset method financially supported by Council

The main carbon offset methods supported by Queensland Councils included energy efficiency, renewable energy, and waste diversion, followed by landfill gas (Table 16). Two coastal Regional Councils supported offsetting through tree planting. Overall, 10 Queensland Councils (5 City, 3 Regional, and 2 Shire Councils) had nominated tree planting as their preferred carbon offset project (Section 4.4). Two northern Councils supported soil carbon as an offset method (Townsville, and 1 Shire Council). Some Queensland Councils do not separate emissions reduction from extra offsetting actions.

Table 16: Carbon Offset Methods Supported by Councils

Offset Method	Shire Council	Regional Council	City Council	Total
Energy efficiency	1	3	2	6
Renewable energy	1	3	2	6
Waste diversion	0	4	2	6
Landfill gas	0	2	2	4
Tree planting	0	2	0	2
Soil carbon	1	0	1	2

4.7 Council preference for carbon offset method

City Council preferences for carbon offset methods were driven by cost, best return for investment, supporting local famers (soil carbon), and constraints on land or limited scope for some offset methods. Regional Councils also preferred offset methods that generated credits, aligned with Council business, involved tree planting by community organisations, and provided tangible results in a short payback period. Mackay Regional Council reported they wanted to 'to learn more about the options available to Local Government for tree planting and soil carbon, there is just too much uncertainty at present.' Sunshine Coast Regional Council preferred offset methods with 'potential to generate own credits, costs' [ie landfill gas, tree planting, waste diversion]. One Shire Council sought 'longer term financial opportunities,' from carbon offset methods. Redland City Council noted they had 'limited scope for landfill gas and energy efficiency remains, (and) we have limited land for tree planting so that leaves the above two' [renewable energy, waste diversion].

4.8 Carbon offset provider supported by Council

Ten Queensland Councils with offset programs supported either Ecofund Queensland (4), Greening Australia (2), vehicle offsets with Greenfleet (2), Climate Friendly (1), and Conservation Volunteers Australia (1) – these all mainly focused on tree planting. Other offset providers preferred by Councils were 'local accredited carbon offset companies,' (Townsville City Council), or 'through mixed service providers for our portfolio of offsets' (Sunshine Coast Regional Council). Larger Councils preferred carbon offsetting by tree planting through recognised providers such as Ecofund Queensland and Conservation Volunteers Australia, based on their 'local capacity and knowledge' to implement offsets, or 'previously used for other projects [CVA]'.

Gold Coast City Council noted 'This [Ecofund] was set up by the State Government for Queensland departments and LGAs. Do not need to go to tender.' It was noted by one city Council that 'Some Councils own large lots or have sizable rural areas, offering carbon sink opportunities'. While Councils can indeed earn carbon credits from offsetting projects on their land, or leasing land to tree planting offset providers, ten Councils were either not sure or had not yet decided which carbon offset provider to support (2 City, 5 Regional, 2 Shire and 1 Aboriginal Shire Councils). Only a few larger Queensland Councils listed carbon offsetting as an abatement action in their climate change plan.

4.9 Council reasons for implementing a carbon offset program

Survey responses indicated that the main reasons for Queensland Councils to implement carbon offsetting (Table 17) were:

1) Council concern about climate change impacts;
2) Supporting biodiversity/conservation;
3) Promoting Council as climate friendly; and
4) Financially supporting tree planting or renewable energy.

Table 17: Reasons to Implement Carbon Offsetting

Reason to Implement Carbon Offsetting	Number	Rank
Major reasons to implement offsetting (> 5 responses)		
Concern about environmental impacts of climate change	10	2.2
The 'right thing to do' for the environment (ie conservation)	8	2.3
Promote Council as a climate friendly business enterprise	8	2.8
Financially support tree planting or renewable energy projects	8	2.8
Minor reasons to implement offsetting (< 5 responses)		
Generate income or earn carbon credits from CFI initiative	4	1.2
Other: *'meet emission reduction targets' 'reach carbon neutrality'*	2	1.5

Secondary reasons for implement offsetting appeared to be earning carbon credits and meeting Council emission targets. Other reasons to implement offsetting included: 'to meet emission reduction targets set by Council' (Redland City Council), and 'to reach carbon neutrality, strategic decision' (Sunshine Coast Regional Council). For larger coastal Councils, their carbon reduction targets and goal of carbon neutrality are drivers for carbon offsetting.

4.10 Main benefits to Council of investing in a land-based carbon offset project

Half of the surveyed Queensland Councils (17) were unsure about carbon offsetting guidelines for Councils in the new *Carbon Credits Act 2011.* A few Councils wanted to sell carbon credits, partner with local businesses for offset projects on Council land, or supported landholders to establish offset projects on private land (four each). Five Councils wanted to earn carbon credits through landfill emission avoidance projects (Table 18). This included one City Council and four larger Regional Councils. Seven

Councils (4 Regional, and 3 City) did not respond, highlighting the uncertainty about the offsetting guidelines in the *Carbon Credits Act,* or benefits arising from offsetting.

Table 18: Benefits of Investing in Carbon Offsetting

Carbon Offset Benefits	Shire Council	Regional Council	City Council	Total
Unsure about guidelines	6	9	2	17
Sell carbon credits	1	3	0	4
Support landholders	1	2	1	4
Earn landfill carbon credits	0	4	1	5
Partner with local businesses	1	2	1	4

Mainly larger Queensland Councils are involved in offsetting carbon emissions from vehicles, electricity, or events. Councils largely preferred offsetting through tree planting, while a few larger Councils purchased carbon credits. Potential Council engagement in offsetting related to selling carbon credits, partnering with local businesses, supporting private landholders, or earning carbon credits from landfills. Half of Queensland Councils were unsure about CFI carbon offsetting guidelines for Councils.

5. Carbon Risk Assessment and Compliance

Carbon Risk Assessment and Compliance was a key theme in Council responses to the survey. Information was provided on Council priority to reduce emissions; Council assessment of carbon emissions/energy usage including the type of calculator/reporting system used; identifying the main sources of Council emissions; reporting NGERS emissions; and Council motives to reduce emissions. This section reports on survey responses to Part C: Climate Change Mitigation and Part E: Preparing for the Carbon Price. Overall, Carbon Risk Assessment and Compliance is mainly implemented by larger coastal Councils and some larger inland Councils (>30,000). These Councils have assessed greenhouse gas emissions, implemented carbon reporting systems, and are aware of their NGERS reporting requirements. Smaller Shire and Regional Councils are less likely to assess and report their carbon emissions and are unsure of their carbon reporting obligations.

5.1 Council priority to reduce greenhouse gas emissions

Larger Regional and City Councils (5) with climate change strategies and corporate targets to reduce emissions evidenced a strong priority for reducing carbon emissions. Other Councils implementing climate actions (9) also gave a medium priority to this goal. Just over half of the respondents (18) indicated that emissions reduction was either a low priority or no priority (Table 19). These were mainly Shire Councils, smaller Regional Councils, and one City Council. Another City Council with a climate strategy did not respond to this question. Few survey respondents considered carbon emissions in the risk assessment section of their corporate or operational plans.

Table 19: Carbon Priority to Reduce Emissions by Councils

Carbon Priority	Ab. Shire Council	Shire Council	Regional Council	City Council	Total
Strong priority	0	0	2	3	5
Medium priority	0	2	6	1	9
Low priority	1	3	7	1	12
No priority	0	3	3	0	6

5.2 Council assessment of carbon emissions/energy usage

Only 13 Councils (5 City, 6 Regional, and 2 Shire) had completed an assessment of carbon emissions by Council staff or by a consultant. Six used both sources of expertise (Table 20 and Figure 6). The consultants included Planet Footprint, Pricewaterhouse Coopers, Sustainable Corporate Solutions, and LGIS. One City Council had reviewed three consultants ('Carbon Systems, Energetix, Intelligent Pathways and others'), with no commitment by Council to initiate carbon reporting. Four Regional Councils (two of them inland) with a population over 18,000 planned to assess carbon emissions during the next 12 months. One inland Shire Council, with a population around 1,000, also reported it planned to assess Council emissions in the next year. Mid-range Queensland Councils, with a population from 12,000 to 120,000, were using consultants such as Planet Footprint for reporting on their energy and water accounts and corporate emissions:

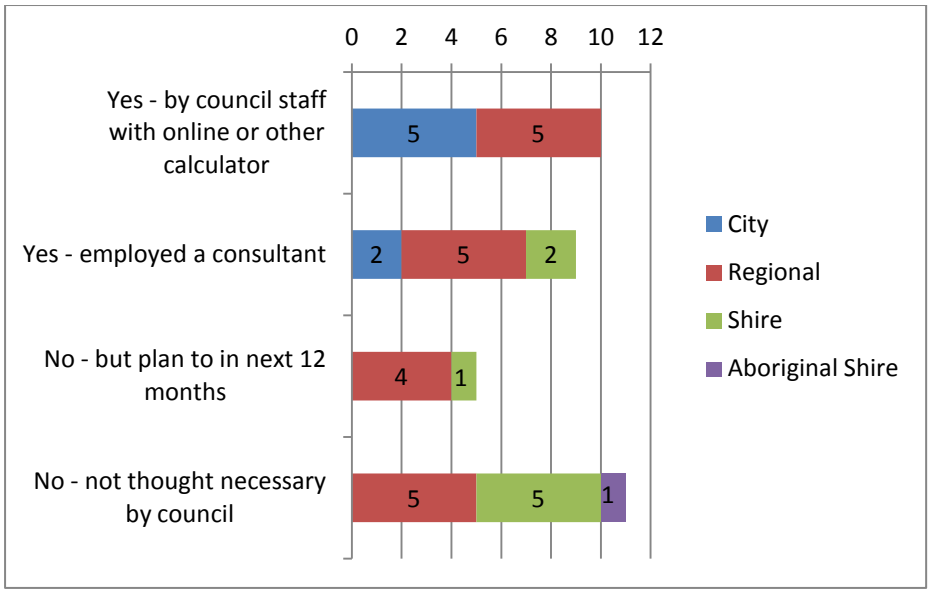
> 'Mackay Regional Council is only currently monitoring it's corporate emissions with an environmental scorekeeping service – Planet Footprint, greenhouse emissions generated from wastewater, landfill, sewerage (methane etc.) will be assessed through this service later this year in 2012 when the service becomes available.'

One coastal Regional Council reported it had an 'assessment of carbon emissions done prior to amalgamation' of Queensland Councils in 2008, but not more recently. Four Regional Councils (2 inland, 2 remote coastal) did not think an emissions assessment was necessary 'due to remoteness and decentralised organisation'; 'population very small', and the community was 'too small.' Seven Shire Councils also reported their small size as the reason why an emissions assessment was not necessary.

Table 20: Council Assessment of Carbon Emissions

Carbon Assessment	Ab. Shire Council	Shire Council	Regional Council	City Council	Total
Yes-Council staff	0	0	5	5	10
Yes-consultant	0	2	5	2	9
No-next 12 months	0	1	4	0	5
No-not necessary	1	5	5	0	11

Figure 6: Council Assessment of Carbon Emissions



The systems used by Councils to assess their emissions included the National Greenhouse Accounts Factors and NGERS. Other systems to assess emissions by larger Queensland Councils were based on Finance One (Sunshine Coast RC), Excel spreadsheets, and an intranet Energy and Emissions database (Cairns RC). Toowoomba Regional Council used a 'custom designed (by Council staff) suite of excel spreadsheets from 2007/08 onwards' to assess carbon emissions.

5.3 Main source of Council carbon emissions

The main sources of Council carbon emissions derived from landfill, energy consumption, vehicle fuels, waste water treatment plant(s), water storage and pumping, street lighting, and other Council facilities (Table 21). There was wide variation in the amount of carbon emissions reported across Council assets reflective of the size of Councils and their ownership of facilities. Other limitations in emissions reporting by Queensland Councils was characterised as 'not completed, no data', 'didn't use the above categories', or 'Planet Footprint does not fit the items listed.' Sunshine Coast Regional Council noted that public street lighting was 'recorded separately from the inventory – but contributes to approximately 5% of Council's total emissions and accounts for approx 27% of Council's electricity usage,' while emissions from other Council facilities (6%) 'includes airport terminal, quarry, community facilities, holiday parks.' Gold Coast City Council reported its carbon emissions in tCO2-e, or 115,682,042 kWh of energy. It is apparent from the responses that there is a need to standardise emissions reporting by Queensland Councils based on categories used in the NGERS system.

Table 21: Council Assessment of Carbon Emissions

Carbon Emissions Source	Number	% Total Emissions	Average Emissions
Council vehicle fleet	10	3%, 3%, 5%, 14.8%, 22.28%, 23%, 29%, 34.5%	16%
Public/street lighting	8	5%, 5%, 5%, 5.9%, 16.8%, 26%	9.8%
Landfill	9	24%, 55%, 56%, 62%, 86%	57%%
Council office buildings	7	3%, 3%, 8%, 17%, 37.58%	13.7%
Total energy consumption	7	10%, 24%, 45.9%, 68.2%	37%
Wastewater treatment plant(s)	6	12%, 10%, 23%	15%
Other Council facilities	4	6%, 9%	7.5%
Water storage and pumping	3	12%, 11%	11.5%
Council lighting	3		
Waste management facilities	2		
Other	1	0.225% *'corporate waste'*	
Other	1	34% *'water, sewerage and electricity'*	

5.4 Reporting Council emissions under the *NGER Act 2007*

Some 19 of the Council survey participants reported their greenhouse emissions as being under the NGERS threshold of 25,000tCO_2-e. These included all five City Councils, ten Regional Councils, three Shire Councils and one Aboriginal Shire Council. Another 11 Councils (5 Shire, 6 Regional) did not respond to this question, as they had 'no data'. One City Council reported Queensland Councils did not have to do NGERS reporting prior to 2011: 'Threshold met, but Queensland Councils are NOT constitutional corporations (Except BCC, under its own Act), so NGERS reporting not required before CE [Clean Energy] Act 2011.' Two larger Regional Councils reported they had mandatory NGERS reporting for their landfill site emissions: Moreton Bay 'begin 12/13-Landfill' and Sunshine Coast, 'landfill sites.' Toowoomba reported: 'exceed threshold but exempt', however, this finding related to energy audits in the Queensland government Smart Energy Savings Program not the *NGER Act.*

No Queensland Councils had completed a voluntary NGERS report on their carbon emissions. Tablelands Regional Council reported it had completed an NGERS report, but also reported 'No - Council emissions under NGERS threshold.' Clearly, Queensland Councils require guidance on emissions reporting under the *NGER Act 2007* and *Clean Energy Act 2011.*

5.5 Types of greenhouse gas emissions measured by Council

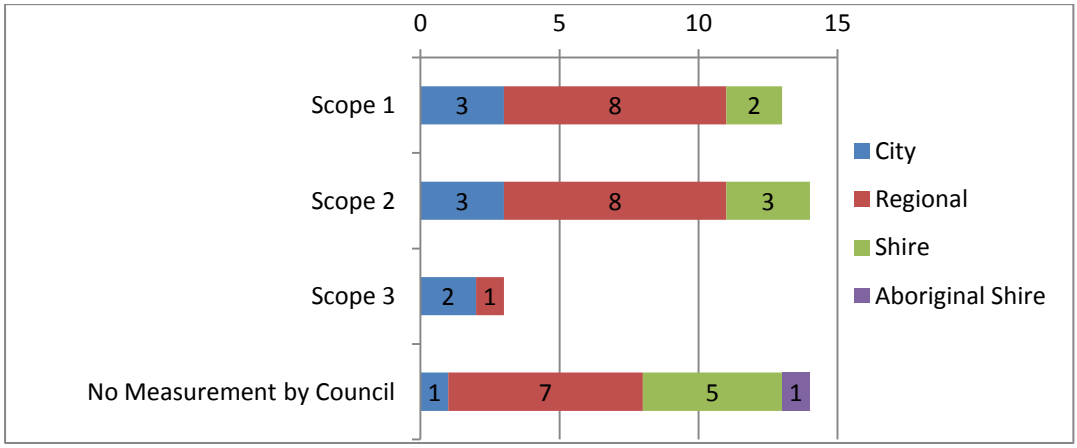
The reporting categories of greenhouse gas emissions measured by Queensland Councils (13) included Scope 1 (eg fuel) and Scope 2 (eg energy) sources (Table 22, and Figure 7). One coastal Regional Council measured Scope 1 emissions only; two Councils measured Scope 2 emissions only (energy); while 12 Councils measured both Scope 1 and Scope 2 emissions. The Gold Coast and Redland City Councils and Tablelands Regional Council measured additional Scope 3 emissions from goods, services, or travel by Council staff (ie Scope 1, 2 and 3). There was no response from one Regional Council and one City Council on the scope of emissions measured. Another 14 Queensland Councils had not measured or assessed their emissions (1 City Council, 5 inland plus 2 coastal Regional Councils, 5 Shire and 1 Aboriginal Shire Councils). The City Council reported it had

'reviewed reporting/monitoring service providers' to assess corporate emissions, and also [had] a draft climate change plan. Scope 1 and Scope 2 emissions are mandatory for a establishing a carbon footprint while Scope 3 emissions are a voluntary inclusion. In accounting for Scope 1 inputs, Councils must include waste emissions.

Table 22: Council Assessment of Carbon Emissions

Scope of Emissions	Ab. Shire Council	Shire Council	Regional Council	City Council	Total
Scope 1 (fuel)	0	2	8	3	13
Scope 2 (energy)	0	3	8	3	14
Scope 3 (goods etc)	0	0	1	2	3
No assessment	1	5	7	1	14

Figure 7: Types of Greenhouse Gas Emissions Measured by Councils



5.6 Landfill emissions liability threshold of Council

Some 14 Councils indicated they were below the landfill emissions liability threshold of 25,000tCO_2-e (Table 23). These included four Shire Councils, eight Regional Councils and two City Councils. Another nine Councils (1 Aboriginal, 3 Shire, and 5 Regional) had not assessed or were unsure about the level of their landfill emissions.

Eight Queensland Councils reported a landfill emissions liability above the threshold of 25,000tCO_2-e. These included three City Councils (Gold Coast, Logan, and Townsville) and four Regional Councils (Mackay, Moreton Bay, Sunshine Coast, and Toowoomba). One inland Shire Council reported it was above the threshold but had not assessed its emissions. Currently only two coastal Regional Councils are involved in mandatory NGERS reporting of landfill emissions under the *Clean Energy Act* 2011: Moreton Bay from 2012-13, and the Sunshine Coast.

Table 23: Landfill Emissions Threshold of Councils (25,000tCO_2-e)

Landfill Emissions	Ab. Shire Council	Shire Council	Regional Council	City Council	Total
No-under threshold	0	4	8	2	14
Yes-over threshold	0	1	4	3	8
Not assessed	0	2	3	0	5
Unsure	1	1	2	0	4

5.7 Cost-effective emissions reduction actions implemented by Council

Half of the surveyed Queensland Councils (17) did not assess, were not sure, or did not know what the most cost effective emissions reduction actions were for their Council (Table 24). Shire Councils were least likely to know about cost effectiveness and had implemented the least number of carbon reduction actions. Selected Regional and City Councils indicated a return on investment of less than 10 years (7) climate actions funded by government grants (4) or lowest initial cost items for carbon reduction (3) as reflecting their optimal approach. Logan City Council reported cost effective investment in emissions reduction technologies were usually those with a less than five year payback period. Only three urban coastal Councils used a MACC or marginal abatement cost curve to guide investment in carbon mitigation actions (Gold Coast, Redland, and Sunshine Coast).

South Burnett Regional Council reported it was using a MACC to 'provide direction for emissions reduction initiatives.' Cairns Regional Council was 'establishing a Carbon Reduction Pathway project with MAC curves and tools for reaching 2020 target' in their climate change plan. Redland City Council also highlighted the need to 'Develop maintain and operate a web accessible (subscription) MACC service for Councils rather than us all having to go it alone in determining investment/return or cost/benefit thresholds for existing and emerging technologies.'

Table 24: Cost-Effective Emissions Reduction by Councils

Emissions Cost	Ab. Shire Council	Shire Council	Regional Council	City Council	Total
Not assessed	0	4	5	0	9
Investment return	0	0	4	3	7
Not sure	0	1	5	0	6
Government grants	0	0	4	0	4
Lowest initial cost	0	0	2	1	3
Based on MACC	0	0	1	2	3
Do not know	1	1	0	0	2

Evidence from this survey confirms earlier findings of the need to compare the effectiveness of large-scale investment by Councils in green building, solar power, or cooling systems, with a range of smaller-scale programs in energy efficiency or behaviour change that deliver emissions reductions (Lynch, 2012).

5.8 Council investment in reducing greenhouse gas emissions

The main areas that Councils respondents were investing to reduce their carbon emissions included: landfill management, energy efficiency, and waste management. Secondary areas of carbon reduction investment by City Councils, larger Regional Councils, and one Shire Council, included behaviour change (eco-actions), vehicle fleet (fuel efficiency), and solar power on buildings (Table 25 and Figure 8).

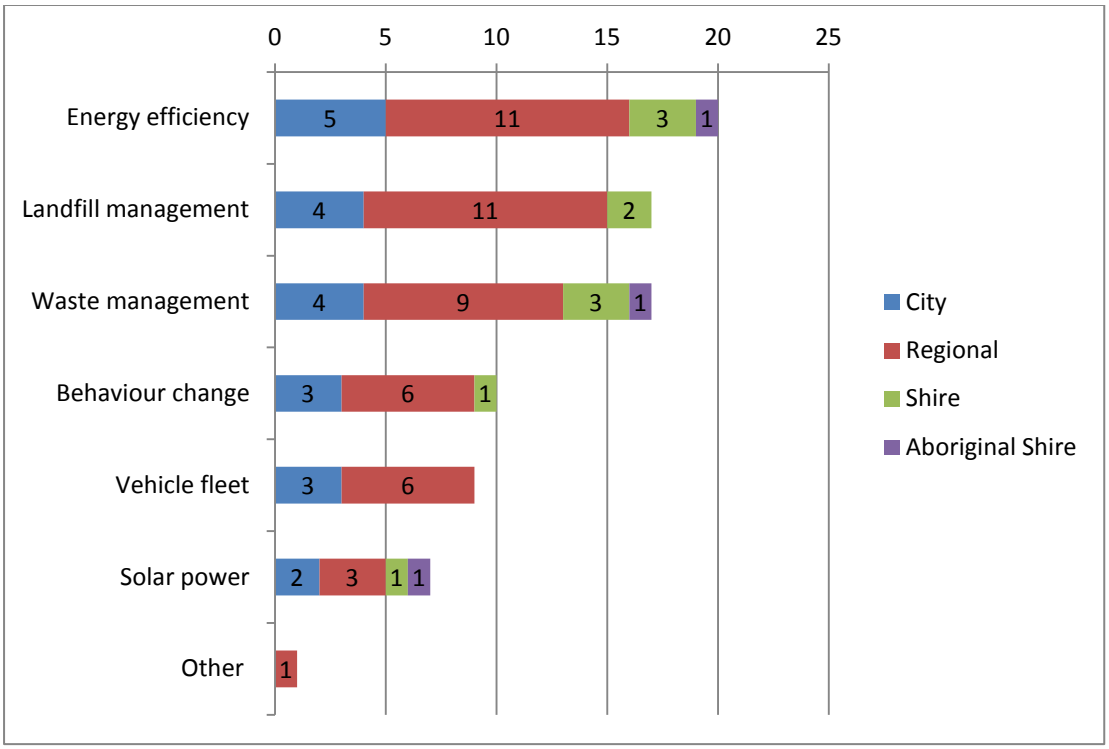
Solar power was a focus for Cairns, Sunshine Coast, and Toowoomba Regional Councils. One inland Regional Council invested only in behaviour change programs to reduce carbon emissions. Shire Councils also mainly invested in just one carbon initiative (ie solar power or energy efficiency or waste management).

Table 25: Cost-Effective Emissions Reduction by Councils

Emissions Cost	Ab. Shire Council	Shire Council	Regional Council	City Council	Total
Energy efficiency	1	3	11	5	20
Landfill management	0	2	11	4	17
Waste management	1	3	9	4	17
Behaviour change	0	1	6	3	10
Vehicle fleet	0	0	6	3	9
Solar power	1	1	3	2	7

One inland Regional Council reported 'we are in the planning stages' so were not sure about their investment in carbon reduction projects. On average, Regional Councils invested in three carbon mitigation areas and City Councils in four carbon programs. Only nine Queensland Councils (6 Regional, 3 City) were investing in vehicle fleets to improve fuel use and efficiency. Seven Councils planned to invest in solar power (3 Regional, 2 City, 2 Shires).

Figure 8: Main Areas of Council Investment in Greenhouse Gas Emissions Reduction



Toowoomba Regional Council ranked its investments in carbon reduction areas as (1) landfill management, (2) energy efficiency, (3) solar power, (4) waste management, and (5) vehicle fleet. No Queensland Councils reported investing in renewable energy to reduce (or offset) greenhouse gas emissions, as there are not Queensland government targets. Three respondents purchased renewable energy, including Tablelands Regional Council, Townsville City Council, and Redland City Council (5%). Brisbane Council buys 100% renewable energy.

5.9 Carbon assessment by smaller Councils (<30,000 population)

This survey found smaller Shire and Regional Councils with a resident population under 30,000 people are the least likely to assess emissions and implement carbon actions. This group included 17 Councils (6 coastal, 11 inland), representing all eight Shire Councils, one Aboriginal Shire Council, and eight Regional Councils (3 coastal, 5 inland).

Three coastal Councils (2 Shire, 1 Regional) had a climate change strategy or greenhouse gas plan, while one inland Council had conducted a climate risk assessment, and another had a climate change policy (Goondiwindi RC). Some 11 Councils complied with statutory obligations, while four Councils (two with climate change plans, two assessed emissions) invested in additional climate actions.

Another 11 Councils responded it was not necessary to assess emissions, while two inland Regional Councils planned to assess emissions in the next 12 months. Four Councils had a consultant assess their emissions.

Seven Councils responded that they did not have to report emissions under the *NGER Act* (3 Councils had assessed emissions), while ten Councils did not respond. Seven Councils reported they were below the NGERS landfill emissions threshold, and eight did not know.

One small inland Shire Council reported it was above the landfill emissions threshold.

Some 12 Councils did not measure emissions. One inland Council measured Scope 2 energy emissions only, while three Councils that had employed a carbon consultant measured both Scope 1 and Scope 2 emissions. The four Councils that measured emissions reported they were 'fairly' (1) or 'a little prepared' (3) for carbon price impacts. One inland Shire Council that planned to assess emissions in the next 12 months was also 'a little prepared', while other Councils were 'not prepared' (9) or 'not sure' (2).

The level of carbon price preparation among Councils correlated closely with their assessment of carbon emissions.

Carbon risk assessment and compliance is an area of concern for Queensland Councils. For example, half of Queensland Councils reported emissions reduction was a low priority or no priority, even some with climate plans. Some 15 Queensland Councils had not yet assessed their carbon emissions. Only 13 Councils had assessed their carbon emissions, and five Councils planned to do so, but not ten smaller Councils.

All City Councils had assessed their carbon emissions, two also employing an outside consultant. Nine of 18 Regional Councils had assessed emissions, with five of those using an outside consultant. A further four intended to assess emissions in the next 12 months. Only two Shire Councils had assessed emissions, with one intending to do so, but most Shires (5) and the only Aboriginal Shire Council did not consider assessment necessary. Overall, 14 of the smaller Councils were below the landfill emissions liability threshold of 25,000tCO_2-e, eight Councils were above the threshold, while eight Councils had not assessed or were unsure about the level of their landfill emissions.

Carbon risk assessment is mainly implemented by larger coastal Councils and some larger inland Councils (>30,000 population) that have assessed carbon emissions, and are aware of NGERS reporting requirements. Smaller Shire and Regional Councils are less likely to assess carbon emissions and are unsure of their carbon liability.

6. Preparing for the Carbon Price

Preparing for the carbon price was another key theme of the survey, and also part of carbon risk assessment. The *Clean Energy Act 2011* and interim carbon price of \$23tCO_2-e become operational on 1 July 2012. A key goal of this survey was to enable assessment of the level of preparation by Queensland Councils for carbon price impacts on Council operations. This includes both the direct (fuel, energy, waste) and indirect (goods) costs to Queensland Councils arising from the carbon tax.

Larger Queensland Councils assessing their carbon emissions reported they were more prepared for the carbon price. Smaller inland Councils were least prepared for the carbon price and were not measuring their emissions. Brisbane City Council has an expected carbon tax of $65 million over four years, while Gladstone Regional Council may also be liable for the carbon tax (Hepworth, 2012).

6.1 Likely impacts of a carbon tax (after 1 July 2012) on Councils

The main impacts of a carbon tax identified by most Queensland Councils were increased energy costs (22), increased fuel costs (19), the need to manage land fill emissions (14) and the need for compliance with the *Clean Energy Act 2011* (13).

Larger City and Regional Councils (10) also recognised a legal obligation to report NGERS emissions over 25,000tCO_2-e. Just 12 Councils however identified increased materials costs from the carbon tax (Table 26). Another 11 smaller Councils were either unsure or did not know the extent of the carbon tax impact on their operation. One remote coastal Council reported the carbon price section of the survey did not apply to them, ignoring the certainty of smaller Councils in remote areas being most impacted by increased energy and fuel costs arising from the carbon tax. Toowoomba Regional Council ranked their response to carbon tax impacts as: 1) Increased energy costs, 2) Manage landfill emissions, 3) Compliance with *Clean Energy Act* provisions, and 4) Reporting NGERS emissions over 25,000tCO_2-e.

The main carbon tax impacts will be a reduction of 6c/litre in the fuel tax credit, leading to higher fuel costs; an estimated 3% increase in landfill costs (Martin, 2012); a 10% increase in the cost of electricity in 2012-13, and gas prices doubling or tripling in the years ahead.

Table 26: Likely Impacts of a Carbon Price on Councils

Carbon Price Impacts	Ab. Shire Council	Shire Council	Regional Council	City Council	Total
Energy costs	1	4	12	5	22
Fuel costs	1	4	11	3	19
Landfill emissions	0	2	9	3	14
Clean Energy Act	1	2	7	3	13
Materials costs	1	3	6	2	12
NGERS reporting	1	0	5	4	10
Unsure of impacts	1	2	3	0	6
Do not know	0	2	2	0	4

6.2 Level of Council preparation for the carbon price

Just four larger Regional Councils tracking emissions reported they were very prepared for the carbon price.

Townsville and Gold Coast City Councils, along with Moreton Bay Regional Council and one other inland Regional Council were 'fairly prepared' for the carbon price, with the first three measuring their emissions. Ten Councils indicated they were only a 'little prepared' for the carbon price, including both rural Councils, and two larger city Councils, both of which had a climate strategy and one also had measured emissions (Table 27).

The five Regional Councils (4 coastal, 1 inland) and three Shire Councils that were a little prepared were all measuring their emissions (eg energy and/or fuel) or planned to assess emissions in the year ahead. Another 12 smaller inland or remote Councils were either not prepared at all or not sure about the carbon price. These Councils (1 Aboriginal, 5 Shire, 6 Regional) had not measured their carbon emissions. One Regional and one City Council did not respond on their level of preparation for the carbon price.

Council preparation for the carbon price related to their size, location (coastal or inland) and, above all, whether carbon emissions were being tracked.

Table 27: Level of Council Preparation for the Carbon Price

Carbon Price Preparation	Ab. Shire Council	Shire Council	Regional Council	City Council	Total
A little prepared	0	3	5	2	10
Not prepared at all	1	4	5	0	10
Very prepared	0	0	4	0	4
Fairly prepared	0	0	2	2	4
Not sure	0	1	1	0	2

6.3 Council support to address greenhouse gas mitigation/carbon price

Survey Councils indicated a range of support measures were required to address carbon mitigation issues and the carbon price. For City Councils this included hiring carbon consultants, access to emissions software, sharing MACC information between Councils for cost effective mitigation actions, advice for Council financial and asset managers on managing carbon issues, 'and financial support from State/Federal government to enable and encourage Council expenditure on efficiencies and renewable [energy].'

Regional Councils listed support measures such as a carbon help line, briefing all Council managers/areas on carbon issues, information on carbon legislation, advice on measuring and reporting emissions, 'Access to technical experts on landfill gas collection,' and assistance with buying/selling carbon permits.

Shire Councils required funding, training, expertise and assistance with assessment of greenhouse gas emissions. Key issues for all Councils were measuring greenhouse gas emissions, assessing cost effectiveness of mitigation actions, and engaging in carbon markets.

6.4 Actions to assist Councils manage carbon mitigation and the carbon price

For all Councils the key carbon issues were measuring emissions, assessing cost effectiveness, and engaging in carbon markets. Against this list, the top three forms of assistance identified by Queensland Councils as being most helpful in their managing carbon mitigation and the carbon price impacts included:

1) Online information/data/tools about carbon mitigation by Councils,
2) Fact sheets about carbon price impacts on Council operations, and
3) Software or consultants to measure and report carbon emissions.

Other areas of desirable support identified by local government officers included statutory planning guidance for carbon mitigation requirements in Council plans (mainly for smaller Councils) determining carbon liability, and developing a carbon management strategy.

Only seven Queensland Councils sought case studies about carbon mitigation actions (Table 28). Additional comments referred to a web-based MACC tool for Councils, assisting asset managers to track carbon intensity of Council assets, and training financial managers to address carbon liabilities (Redland CC). Other areas reported for action were 'Detailed mitigation technologies assessments' (Logan CC), and 'information about carbon sequestration [opportunities] for Council plus analysis of key risks and opportunities for Council given the carbon price [legislation]' (Cairns RC). Providing this carbon mitigation advice would assist all Queensland Councils to assess carbon emissions and address the impacts of the carbon price on Council operations. Support and input from LGIS, LGAQ and the Queensland Department of Local Government are essential for this task.

Table 28: Actions to Assist Councils to Manage Carbon Price

Carbon Price Assistance	Ab. Shire Council	Shire Council	Regional Council	City Council	Total
Online information	1	3	10	3	17
Fact sheets	1	4	7	2	15
Software/consultants	0	2	10	2	14
Planning guidance	1	2	9	0	12
Carbon strategy	0	4	6	1	11
Carbon liability	0	4	4	3	11
Case studies	0	2	3	2	7
Other	0	1	2	2	5

7. Conclusions

Larger Queensland Councils assessing their carbon emissions are more prepared for the carbon price, while smaller, inland Councils are least prepared for the carbon price and were not measuring their emissions.

Most Councils see the increased energy and fuel costs arising from the carbon tax as the principal impact on their operations followed thereafter by the increased costs of managing landfill emissions, compliance with *Clean Energy Act* reporting and additional materials costs from supply chain impacts.

This report benchmarks the current status of strategies and methodologies employed by Local Government in Queensland to achieve a reduction in the carbon intensity of their operations in response to climate change and legislative action by the Australian Government. Our survey of Queensland Councils reveals there is much to be done across the State in assessing local Council greenhouse gas emissions and in implementing cost effective emissions reduction actions.

Our analysis indicates that if Councils are to engage with the issues of climate change, emissions reduction and carbon offsetting, the benefits of energy efficiency and cost savings will be key drivers for action. The determination of cost-effective emissions reduction by Councils should include a range of both large and smaller energy efficiency projects, behaviour change, and offsetting. The implementation of a carbon price of $\$23tCO_2$-e from 1 July 2012 will impact on Council operations through the increased cost of energy, fuel and materials. Carbon liability from landfill emissions will be a concern for many Queensland Councils.

This report recommends that support and training on carbon assessment, reporting and mitigation should be targeted to mid-range Queensland Councils, including advice on how carbon legislation and the carbon price impacts on all areas of Council operations.

Core carbon issues for all Queensland Councils will be measuring emissions, assessing the cost effectiveness of carbon reduction actions, and engaging in carbon offset markets.

7.1 Key recommendations

The recommendations emerging from this report address the preparation and readiness of Queensland local Councils to address their carbon risk and liability in a carbon economy. These actions will require support from all levels of government and the private sector.

Key Recommendations

Sustainability and climate change leadership

To establish a carbon emissions mitigation program, all Queensland Councils should:

a) Secure relevant experts to brief all Council managers and departments about the relevance of carbon mitigation actions
b) Establish a dedicated carbon reduction fund within the operating budget of Councils
c) Incorporate carbon reduction targets and actions into Councils' corporate or strategic plans.

Carbon management and carbon mitigation actions

To enable Councils with the necessary capabilities, Federal and State Governments should work with local government to:

a) Continue providing loans or matching co-contributions to fund mitigation actions by smaller Councils
b) Develop a mandatory code within QPP for the inclusion of passive and active energy efficiency in new developments. Include mitigation requirements within the Building Code Queensland
c) Consider incorporating relevant carbon mitigation guidelines in the 2012 review of the Local Government Act
d) Inform Councils about web calculators, carbon consultants and software to assess emissions
e) Resource a full time position for five years to focus on climate change for local government in Queensland
f) Develop a Queensland local government clearinghouse/website resource for climate information (eg WALGA www.walga.climatechange.com.au)

Carbon offsetting

To provide a framework for carbon offsetting in local government, State and Federal government and the private sector should continue to engage with local Councils to:

a) Provide information about carbon offsetting guidelines in the *Carbon Credits Act* to Councils and how to apply for Biodiversity Fund grants
b) Link Councils with large tracts of land to carbon offset providers seeking to plant trees or revegetate Council land.
c) Encourage Councils to purchase at least 5% Renewable energy to reduce or offset Council emissions

Carbon risk assessment and compliance

To ensure appropriate carbon risk assessment and compliance, Governments at all levels should give priority to:

a) Including the level of exposure to carbon emissions as part of risk assessment by Councils in operational plans
b) Assisting Councils to measure and track both Scope 1 and Scope 2 emissions
c) Providing technical advice to Councils on landfill emissions and flaring or capturing gas.

Preparing for the carbon price

To ensure optimal Council performance and efficiency in an economy where carbon is priced, all local Councils should:

a) Develop a Marginal Abatement Cost Curve (MACC) tool to guide Council investment in effective carbon mitigation actions
b) Train Council asset managers and financial managers to assess carbon intensity/liability
c) Budget for an estimated 10% increase in fuel, energy and materials costs from the carbon price.

Feedback obtained from carbon management and sustainability staff at two larger Regional Councils supported these key recommendations. One Council supported all the recommendations with the exception of carbon offsetting which it asserted required greater clarity. Regional and rural Councils also required more funding and resources for carbon mitigation actions.

The other Council commented on legislative and operational aspects of implementing the recommendations and suggested a climate change officer and website be funded. The Local Government Association of Queensland (LGAQ) provided feedback on Council adoption of these recommendations and advised on the use of planning terminology.

The 2012 review of the *Local Government Act* by the Queensland State government (MacDonald, 2012) also provides a key opportunity for carbon mitigation guidelines to be included in the rules and responsibilities for all Queensland local Councils.

Implementing these recommendations will assist Queensland local Councils to manage their carbon emissions and address carbon liability under the carbon price mechanism.
This report assists in this process by establishing a benchmark for tracking changes in carbon mitigation actions by Queensland local Councils. It also highlights the need for Queensland Councils to assess and determine cost-effective emissions reduction actions. Energy efficiency and cost savings will be key drivers for Councils to reduce emissions. There is much to be done across the State in managing local Council carbon liability.

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